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RURAL HEALTH AND THE TRUMAN PLAN

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Chicago, Illinois

A PROPRIETARY interest in "problems" seems to be one facet of our society, organized as we are into so many vocal interest-groups. The pattern seems to be to stamp a problem with one's adjective, and then to repel boarders. For instance in the matter of medical care, Fishbein says:[1]

"The medical profession has insisted with remarkable unanimity that no other group except physicians is really entitled to say how medicine should be practiced, for only the physicians are competent by training and experience to judge adequately the quality of medical care. There is no criterion of adequate medical care except the quality of the care that is rendered."

One wonders whether there is not something to be said also for the quantity of medical care, and for the matter of allocation of the various qualities and quantities among all those persons who may be in need of medical care. Another view is Falk's:[2]

"Social and economic health measures are directed primarily to the effective organization of health facilities and to the adequate provision of health services. They are only secondarily concerned with the technology of medicine. The content of medicine is the physician's domain. But the circumstances under which he practices and his economic relation to society

* The writer wishes to express his appreciation for aid in preparation of this paper from Elin Anderson, Michael Davis, Lynn Doctor, Leonard Engel, Erven Long, and Louis S. Reed.

[1] Morris Fishbein, M.D., "The Doctor and the State," in *The Medical Profession and the Public*, American Academy of Political and Social Science, Philadelphia, Pa., 1934, p. 88.

[2] I. S. Falk, "An Introduction to National Problems in Medical Care," *Law and Contemporary Problems*, Vol. VI, No. 4, Autumn 1939, p. 500.

or to the individual patient are problems of organization, problems in the public domain in which the physician is only one among many who are vitally interested."

Research into the economic problems of medical care, and proposals for reform from within and without the ranks of the profession, have met the hostility and opposition of the most articulate segments of organized medicine. (The Physicians Forum and the Committee of Physicians for the Improvement of Medical Care, for example, have supported such reforms.) Each new development in public health has been bitterly fought;[3] voluntary and philanthropic organizations interested in human welfare have been objects of suspicion[4] and attack.[5] Yet despite this apparently automatic reaction to novelty, the medical profession adjusts to each new development as a glacier slides down a valley; it maintains its frigid dignity, but it does move. The contemporary excitement over "socialized medicine" must be viewed in the light of the profession's record of opposition to all that is new.[6] The day may even be in sight when the medical profession will welcome assistance from other disciplines in studying the problems of the distribution of medical care. Without waiting for this day to arrive, this paper is undertaken in an attempt to point out certain areas in which economics can contribute to a solution of the "medical" problem.

Definition of the Problem

It seems anomalous that we should have such a problem in the United States, yet as evidence that we do there are four major bills before Congress, and a message from the President.[7] Advances in

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[3] Gaylord Anderson, "The Political Impact of Modern Science on Public Health," *Annals of the American Academy of Political and Social Science*, Vol. CCXLXIX, January 1947.

[4] Bernhard J. Stern, "Society and Medical Progress," Princeton University Press, Princeton, New Jersey, 1941.

[5] J. G. Crownhart, "Sickness Insurance and the Propagandist Foundations," State Medical Society of Wisconsin, pamphlet, January 2, 1935. "Sickness insurance" is used to describe any insurance plan not in accord with the policies of organized medicine. "Health insurance" is used to describe approved plans.

[6] The dean of the medical school of a Midwestern state university has defined "socialized medicine" in a conversation with the writer as "anything the AMA doesn't like."

[7] The Administration's bill (S.1679) introduced by Senator Thomas and others, and the less controversial bills offered by Senators Taft (S.1581) and Hill (S.1456), and by Representative Javits and others (S.1790). The President delivered his message on April 23, 1949.

knowledge concerning disease have been notable in this century; the life expectancy of our population has soared; by many measures the nation has grown steadily healthier. Yet there exists a problem. What is it?

The problem is to find an institutional mechanism to bring together people and the medical care that is potentially theirs. Our great medical resources are not now giving their services at full capacity. Personnel and institutions specialized for medical care are not distributed in accordance with the needs of the population, nor are they organized to serve most efficiently the people within reach. Need for medical care exists wherever there are people. In our economy, means for providing medical care have grown up in relation to incomes, not to people and their needs for care. Most medical facilities concentrate in urban areas; these areas offer the highest purchase price for medical services. Rural people simply do not know what they are missing in modern medical care.

Statistics collected by the United States Public Health Service indicate that in rural areas rates of mortality are high, and rates of morbidity are high—for diseases classed as "preventable." Most tragic is the fact that rural rates for maternal and infant mortality are particularly high.[8] Mott and Roemer say in a summary paragraph of their invaluable volume on rural health,[9]

"People in cities have long looked on rural life as the healthful life, and 40 years ago in this country they were close to the truth. Rural people were then healthier as a group; the toll of fatal disease and premature death was much lower among them. But movements were already afoot and trends taking shape that were to mean progressive and rapid improvement in urban health, a dramatic advance only feebly reflected and far from paralleled by the lagging betterment of rural health during the same decades."

The very nature of the organization of rural life makes difficult the necessary contacts between physician and patient. In 1940 only one fourth of all farms had telephones, and forty-two percent of all farm operators were without automobiles of any kind.[10] It is the custom in many rural areas for the physician to charge one dollar

[8] Statistics and special studies are published regularly in the Public Health Service's periodical, *Public Health Reports*. For summarized data on rural health statistics, see Frederick D. Mott, M.D., and Milton I. Roemer, M.D., "Rural Health and Medical Care," McGraw-Hill, New York, 1948, chapters 4 through 7.

[9] *Ibid.*, p. 49.

[10] *Ibid.*, p. 35.

per mile for a home visit, in addition to his regular fee.[11] Distribution of medical services to rural people is more expensive, and their means of payment are less, than in urban areas. Rural people thus have an interest in the solution of the national problem of the distribution of medical care; few groups have more to gain.

Progress in medical knowledge from the horse-and-buggy stage has introduced three general problems which must be solved by a new institutional mechanism; by a new method of organization, in Falk's terminology. The problems as the economist sees them are those of complexity, cost, and concentration. These will be discussed in turn.

The Problem of Complexity

The vast and increasing scope of medical knowledge, compared with a generation ago, has been illustrated by Dr. Benjamin Miller through the example of training for general practice. For a doctor of today to become trained in all the fields of medicine offered by the traditional general practitioner would require an aggregate of internships lasting seventeen years. At the end of that time, says Dr. Miller, the earlier fields studied would have been so changed that it would be necessary to repeat them. The conscientious trainee for general practice would consequently never leave school.[12]

Not only is specialized training necessary for modern medicine; student doctors are taught to work with specialized aids of sorts rarely found far from hospitals. Modern medical care practically requires the existence of hospitals. Modern doctors learn to rely upon the trained assistance of nurses and technicians, and to use the highly-developed diagnostic aids available in X-ray, pathological, and bacteriological laboratories. The hospital itself provides an efficient center of operations for the physician dealing with the problems of his patient; everything he will need in a wide range of cases is at hand; other physicians consulted fit smoothly into the routine. In every case it is not necessary to call upon the services of several diagnostic aids, or to prescribe several complicated treatments, but

[11] For instance, "I live in a county that doesn't have an active practicing physician. The nearest physician is 22 miles away. The flat charge is a dollar a mile. The low income group in American agriculture simply doesn't get medical service from that kind of charge. They go without it . . . ." Ransom E. Aldrich, "The Farmer's Medical Care Problem," *Journal of the American Medical Association*, Vol. CXXXI, No. 6, June 8, 1946, p. 553.

[12] Benjamin F. Miller, M.D., *You and Your Doctor*, Whittlesey House, New York, 1948; years required for interning in the various specialties are tabulated on page 17.

the fully-equipped hospital is a guarantee that when the need arises, the service is at hand. The advances in medicine which make possible cures in cases formerly hopeless require persons of many skills and these persons need the tools of their trades.

Good medical service for rural areas requires the existence of all health services, in proper supply. To the extent that the services are specialized—almost a synonym for modern—there must be a method of coördinating them. The supply of no health service is up to par in rural areas. Hospitals and diagnostic laboratories are in very short supply.[13] The supply of physicians is far below par; the supply of specialists even further below.[14] Although there are exceptions, and most rural physicians are hardworking and conscientious members of their communities, "the environment of country practice is one of continuous frustration and continuous inability to do the things that the thoughtful physician realizes are indicated . . . he rarely can find the opportunity to go away for a state medical society meeting, a refresher course, or postgraduate studies, and, after a while, he loses interest in the idea. As the years go by, he tends to become more firmly lodged in an intellectual rut, and soon the detail men from the various drug houses become his chief source of information on current therapeutics. . . . Even local medical societies, which might tend to provide a certain amount of ethical and professional guidance to practitioners, are as a rule much weaker in every way in rural counties than in the cities."[15]

The proliferation of new services in the medical world—each justified by its role in new methods of healing—has been accomplished within the framework of the fee-for-service system of medical billing. It is a canon of organized medicine that the physician's special skill at diagnosis and treatment extends to the field of charging for his service. To practice medicine has been interpreted as to be free to charge what one thinks best. When the services of several physicians are needed, therefore, there are as many separate bills, each an amount set by the physician concerned. Also, there are separate bills for hospitalization, and usually for each service offered by the hospital beyond room and routine food and nursing.

For the patient, enjoyment of the wonders of modern medicine requires a balancing of the possible merits of each suggested treatment with the probable cost. For the physicians concerned, each

[13] Mott and Roemer, *op. cit.*, chapters 13, 14, 15.
[14] *Ibid.*, chapter 8.
[15] Mott and Roemer, *op. cit.*, p. 183.

can charge as a discriminating monopolist. Only the hospital and the services sold under its auspices are on a flat rate. For the patient, there may be the additional problem that the services needed are physically scattered. Thus a patient with an illness which might involve care of more than a routine sort faces a maze of special charges, some of them not to be determined until after the treatment has been given. His personal physician, who is responsible for guiding his choice and for suggesting the proper expenditures in the search for health, knows that his guidance must be tempered with an understanding of the patient's pocketbook. This obtains in the interest of the physician's own fee, if not in the interests of the patient.

Ability to pay for medical care has become a factor in medical judgment. The traditional "scaling down" of fees to persons of low income has become lost in the new world of institutionalized medicine. The individual's personal physician can scale his own fees up or down, but the hospital demands payment, and the specialist or the physician operating the diagnostic laboratory need have no charitable feelings toward a patient hitherto unknown to him. There are usually plenty of patients who can pay; if there are not, the physician can move to a place where his services are better rewarded.

There are two ways to take the dollar sign out of medical judgment. One is to provide all services at no charge. The other is to make a single charge for an entire treatment, whatever it entails. This charge may vary in proportion with the treatment given, but a single charge can be scaled to a patient's ability to pay; even if there is monopolistic billing, there is at least only one monopolistic proboscis in the pocketbook.

The device of charging once for a complete treatment has been developed by teams of physicians, usually with their own technicians and sometimes with a hospital as well, organized into "medical group practice." The underlying idea of group practice is that the patient is a single unit needing coordinated treatment, and the group attempts to pool its knowledge and skill in providing the treatment necessary. Physician members of a group are ordinarily representatives of complementary specialties. The patient can be examined by any or all of the physicians without leaving the office. The matter of payment is only loosely related to treatment. In many groups, payment is wholly divorced from treatment; these

groups use prepayment plans, or are organized specifically for patients by their industrial or labor organizations, with doctors on salaries.

Rural communities have experimented successfully with medical group practice, frequently in conjunction with prepayment plans. Perhaps the best known of these is the plan at Elk City, Oklahoma, sponsored by the Farmers' Union.[16] Other plans, with or without prepayment plans, have been started in Nebraska, Texas, North Dakota, and other states.[17]

Varying types of experiments in reducing the barriers to rural health due to complexity and disorganization are those of the Bingham Associates Fund,[18] aimed at bringing modern diagnostic techniques to rural Maine, and of the Commonwealth Fund,[19] dealing with the coordination of the services of hospitals in the neighborhood of Rochester, New York.

Medical societies have been bitterly hostile to the principle of group practice, whether organized under the auspices of their own members or upon the initiative of laymen. The American Medical Association got its fingers burned for abetting the Washington, D.C., Medical Society in the latter's struggle to kill off an early plan, Group Health Association, Inc.[20] The Supreme Court's decision was handed down in January, 1943. Ever since then, the battle has been carried on at the state and county medical-society levels; fired by latent dislike rather than clear editorial directives from the medical press. The number of medical groups in the nation still is not large, partly as a result of this local opposition. The device is extremely interesting, however, and has received attention from

[16] For a spirited account of the early history of this plan, see Michael A. Shadid, *A Doctor for the People*, Vanguard Press, New York, 1939.

[17] See, for instance, Elin L. Anderson, "Adequate Medical Care for Rural Families," *Journal of Home Economics*, XXXVI, No. 7, September 1944, and the publications of the Coöperative Health Federation of America, 343 South Dearborn St., Chicago, Ill.

[18] "The Bingham Associates Fund," pamphlet published by the Fund, 30 Bennet Street, Boston, Massachusetts, April 1945. Samuel Proger, M.D., "Distribution of Medical Care," *Journal of the American Medical Association*, CXXIV, March 25, 1944, pp. 823–826. Leonard Engel, "The Bingham Plan," *Scientific American*, Vol. CLXXIX, October, 1948.

[19] Mott and Roemer, *op. cit.*, pp. 455–456, and the annual reports of the Commonwealth Fund, 41 East 57th Street, New York 22, N. Y.

[20] The Department of Justice successfully brought action against AMA, the District of Columbia Medical Society, and other defendants under the Sherman Act. Most interesting is the evidence secured by the Government by subpoena of the records of the AMA's Bureau of Medical Economics. This evidence is published in the Record on Appeal with the proceedings of the Circuit Court. The judicial history is to be found in 26 Fed Supp 429, 110 Fed 2nd 703, and 317 U.S. 519.

many physicians seriously interested in improving the organization of medical care.[21]

The Problem of Cost

Cost of medical care has an economic significance distinct from its role within the problem of complexity and the effect of discrete unit costs upon medical judgment and treatment prescribed. Medical needs are unpredictable, and peculiarly subject to inelasticities of demand on the part of the afflicted person. Few budgets can handle the charges for a serious illness. Treatment for conditions requiring expensive care over long periods has been recognized as too great a charge upon individuals, and public assumption of these charges has long been the rule. It surprises some persons to learn that three-fourths of all hospital beds in the nation are in government hospitals; that about half of all beds in the country are occupied by mental patients. Mental disease, tuberculosis, and certain chronic and degenerative diseases have been "socialized" for many years in this country.[22]

For all the magnitude of the charges for a serious illness, the incidence is so low that the average family does not appear to have a problem. For many years the total cost of medical care, measured as a share of consumer budgets or as a share of the national income, has hovered around four percent. This fact is used by the American Medical Association in arguing that there is no problem of cost in medical care.[23] Invidious comparisons are drawn with the larger

[21] See "An Annotated Bibliography of Group Practice," pamphlet, American Medical Association, 1948, and G. Halsey Hunt, M.D., and Marcus Goldstein as listed in this bibliography, and succeeding articles in their study of group practice under the auspices of the Public Health Service.

The enthusiastic distrust of organized medicine for innovations suggested from without reached a point during the 80th Congress where government employees were actually fearful of discussing health problems with farm groups. See in this connection "Investigation of the Participation of Federal Officials in the Formation and Operation of Health Workshops," Third Intermediate Report of the Committee on Expenditures in the Executive Departments, 80th Congress, 1st Session. House Report No. 786, July 2, 1947; Hon. Forest A. Harness, "Forcing Socialized Medicine on America by the Use of Federal Employees and Government Money," *Arizona Medicine*, vol. V, No. 1, January 1948; "Rural Health Problems Considered and Policies Adopted at Meetings of Grange and Farm Bureau in Columbus," *Ohio State Medical Journal*, vol. XLIV, No. 1, January 1948.

For a general treatment of the manner in which opinion is formed and controlled within the medical profession, see Oliver Garceau, "The Political Life of the American Medical Association," Harvard University Press, Cambridge, Mass., 1941.

[22] An authoritative source for all hospital statistics is the annual "Hospital Number" of the *Journal of the American Medical Association*, published every Spring.

[23] Frank G. Dickinson, "Is Medical Care Expensive?" American Medical Association, Chicago, pamphlet, 1947.

fractions of the national income accounted for by non-essential items. But the importance of a medical cost is not in its average size. It is in the impact of the cost upon the family or individual which must handle this among its other economic adjustments. If there is a magnitude to be measured in medical costs, it is the magnitude of their variation, not their average size.[24]

Medical care insurance is the obvious mechanism to eliminate the magnitude of variation in cost of medical care. This has been recognized grudgingly by organized medicine only within the last five years. The history of health insurance in this country in the last fifteen years is a story of steady back-tracking by the medical profession. The Committee on Costs of Medical Care reported in 1932 that group practice and voluntary health insurance would help in a solution of the problem of distributing medical care. The editorial reaction of the medical profession was intemperate in the extreme.[25]

Prepaid hospitalization insurance with benefits on a service basis sprang up in the early 1930's, despite opposition of organized medicine. The plans prospered, and banded together under the trademark "Blue Cross." Medical approval in principle followed after the success of the plans was assured. Special legislation was sought by hospital administrators to excuse their prepayment plans from the rules for insurance companies.[26] Starting about a decade ago, insurgent state medical societies ventured into forbidden territory and began instituting prepaid medical care plans of their own devising. The leaders in this movement were the medical societies of California, Pennsylvania, Massachusetts, Michigan, and New Jersey.

[24] A classic statement of this concept is to be found in I. S. Falk, Margaret C. Klem, and Nathan Sinai, "The Incidence of Illness and the Receipt and Costs of Medical Care among Representative Families," (Publication of the Committee on the Costs of Medical Care, No. 26, University of Chicago Press, Chicago, 1933, pp. 234–235.) Phraseology of this sentence is borrowed from that report.

[25] See editorials in the *Journal of the American Medical Association*, Vol. IC, No. 23, December 3, 1932, and Vol. IC, No. 24, December 10, 1932. Years later an explanation was made for the extreme position of those days, at least implicitly, in Morris Fishbein, M.D., "The Public Relations of Modern Medicine," *Journal of the American Medical Association*, Vol. CXXX, No. 8, February 28, 1946. The report proper is "Medical Care for the American People; the Final Report of the Committee on the Costs of Medical Care." University of Chicago Press, Chicago, 1932.

[26] C. Rufus Rorem, "Enabling Legislation for Non-profit Hospital Service Plans," *Law and Contemporary Problems*, Vol. VI, No. 4, Autumn 1939. The early laws specified certain representation on boards of directors; for instance that one third of the board be practicing physicians, and one third hospital administrators. This is important in that there is recognition that a hospital should be dominated by no single professional group if it is to give its best service. For an excellent presentation of the philosophy of the hospital, see Henry J. Southmayd, "Small Community Hospitals," The Commonwealth Fund, New York, 1944.

Special legislation was sought to help these plans also, but with an important difference—legislation was urged by medical societies in forms which would guarantee complete medical control of every aspect of the prepayment process.[27] This had the effect of killing plans proposed by lay groups, particularly those to be organized as cooperatives or as adjuncts of group practices.

In 1945 the American Medical Association capitulated to prepayment plans organized by medical societies, and began sponsoring the device as a means of combating the rising threat of national health insurance. At its June, 1949, meeting, the Association changed fronts in the matter of consumer-sponsored medical prepayment plans, by announcing that these may be tolerated if they meet certain specified conditions. Since the most effective weapons at the disposal of medical societies are in the hands of the county societies, this revised attitude does not guarantee that any actual change will take place.[28]

The principle of health insurance has been so well accepted by now that its extension is central to the four major bills before the Congress. The Taft and Hill bills propose governmental aids to the extension of health insurance plans organized in accordance with the views of the medical societies; the Javits bill proposes governmental aid to consumer-controlled cooperative voluntary health plans; the Administration bill proposes nation-wide compulsory health insurance financed by payroll deductions. The Javits and the Administration bills provide for contributions in proportion to

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[27] See Richard R. Cranmer, M.D., "Medical Care Incorporated," *Bulletin of the Hennepin County Medical Society*, Vol. XIX, No. 1, January 1948, for the story of the drafting of the desired legislation in Minnesota; also William J. Burns, "The Michigan Enabling Act for Non-profit Medical Care Plans," *Law and Contemporary Problems*, Vol. VI, No. 4, Autumn 1939; and Hartley F. Peart and Howard Hassard, "The Organization of California Physicians' Service," *Ibid.* For a recent summary of the monopolistic aspects of this type of restrictive legislation, see "Restrictions on Free Enterprise in Medicine," pamphlet, Committee on Research in Medical Economics, 1790 Broadway, New York; and Margaret Klem, "Recent State Legislation Concerning Prepayment Medical Care," *Social Security Bulletin*, Vol. X, No. 1, January 1947. The best overall study of voluntary plans organized by hospitals and by medical societies is Louis S. Reed, "Blue Cross and Medical Service Plans," U. S. Public Health Service, Washington, October 1947, processed.

[28] See William L. Laurence, "AMA Lists Health Plan Tests with Local Units as Judges," New York *Times*, Friday, June 10, 1949. The weapons at the disposal of county medical societies are expulsion of offending physicians, and actions leading to exclusion from practice in local hospitals. See J. W. Holloway, Jr., "Hospitals and the Selection of Medical Staffs," *Wisconsin Medical Journal*, Vol. XLII, No. 11, November 1943. Also see the record of the AMA's trial in the Group Health case, *op. cit.*

income; the Taft and Hill bills do not. It is alleged that after a few more years, the voluntary plans will attain the coverage visualized for the compulsory plan. Certainly recent growth of voluntary plans has been amazingly rapid, but there is reason to believe that this is to be accounted for by the late appearance of many of the plans, and by the even later endorsement and promotion of them by the medical profession. A survey of the present coverage of voluntary health insurance shows that Blue Cross hospitalization plans cover about 33 million persons in the United States, of whom 60 percent live in six industrial states. These plans will cover about one-fifth of a family's total medical costs.

Medical society prepayment plans ("Blue Shield") cover about ten million persons, practically all of whom also have Blue Cross coverage. Over 85 percent of these persons are in seven high-income states. These plans do not cover all medical needs. Most frequently, they cover only surgical or obstetrical charges, when the patient is in a hospital. Some plans also pay for such items as care given in the doctor's office. All physicians' services in a hospital amount to about fourteen percent of the total medical bill of an average family. Blue Cross and Medical Society plans together, then, will cover about 35 percent of the charge for a serious illness.

Comprehensive service plans, such as that at Elk City and others organized by consumers through cooperatives, unions, industrial health plans, etc., cover between three and three and one-half million persons in many plans scattered over the country. Such plans cover nearly all medical costs.

Commercial insurance policies have been sold to about twenty million people. These policies are characterized by a low ratio of benefits to premiums paid, and like most Blue Cross and increasing numbers of Medical Society plans, benefits are paid in the form of cash payments, unrelated to the actual size of the bill received. The usefulness of these policies is further limited by the fact that many people with some form of unfavorable medical history, and therefore usually in most urgent need of coverage, are either not eligible for health insurance or else have riders attached to their policies precluding payment for any recurrence of a pre-existing ailment. These are often the persons most ruinously crippled financially by persisting ill health.

These figures conceal an unknown amount of duplication, since many persons hold commercial policies as well as Blue Cross mem-

bership or membership in other health plans.[29] Of all these millions, how many are rural people? Secretary Anderson said in January, 1948, "Prepayment plans for surgical and other medical services offered by State and county medical societies have today reached less than one percent of the country people."[30]

Requirement of group membership is usual for Blue Cross and Medical Society health plans; groups ordinarily are comprised of the employees of a factory, an office, or another institution capable of subtracting dues from a payroll. A voluntary health plan requires for safety a reasonably heterogeneous clientele, and one large enough to spread the risk. Every such plan has barriers to membership aimed at decreasing the claim ratio for the plan as a whole. It is safer to enroll people in groups classed on some basis such as a common place of employment, than to allow individuals to select themselves as clients on the basis of their probable future needs for medical care. This means that the health of the plan in a financial sense may militate against the health of just the individuals who most need medical care. These people are not allowed to join, for they would take more in benefits than they would bring in premiums. By the same token, longtime members of a voluntary plan may be dropped summarily for reaching a certain age, or for incurring a condition which is liable to be a precursor of more charges. Rural populations, needless to say, are not easily handled through group enrollments, nor can their premiums ordinarily be paid through payroll deductions.[31]

The existence of a prepayment plan is one thing; the policies of its controlling body is another. There is room for administrative judgment within the limits of financial solvency. Shall the plan be attuned to the special needs of the consumers, or to the special interests of the individuals who provide the services? Medical Soci-

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[29] This information is taken from a report prepared by Katherine G. Clark for the Committee on Research in Medical Economics, 1790 Broadway, New York City, March 1949.

[30] Margaret C. Klem and Margaret F. McKiever, "Program Developments and Benefit Trends in Voluntary Health Insurance," *Social Security Bulletin*, November 1948, p. 4.

[31] A personal letter by the writer to the headquarters of Associated Medical Care Plans, Inc., the trade association of the Medical Society prepayment plans, elicited the information that nothing is being done at present to increase rural enrollments, but that Blue Cross plans in thirty-seven states have made provision for enrolling groups of farm people, and that in twenty-seven states, it is possible to join Blue Cross without being a member of an organized group.

ety plans have been attacked severely for ignoring the needs of the consumer and for catering to the interests of physicians.[32]

When service to the consumer is the guiding motive, a prepayment plan can contribute to a marked increase in the amount of medical care even a relatively isolated community can obtain. A good example is the combined group practice and prepayment plan of the Trinity Hospital, Little Rock, Arkansas. This plan serves persons from all parts of the community with very few membership restrictions, and handles the added liabilities of aged clients through modest increases in their premiums. Margaret Klem has estimated that,

"The volume of services received by Trinity subscribers and their dependents was comparable with that purchased by persons with annual incomes of $10,000 or more who paid about four times as much for the services received on a fee-for-service basis."[33]

It should be emphasized that this prepayment plan is on a service-indemnity basis, not cash-indemnity. To what extent the difference in cost of the medical care received is attributable to better coordination of services, and to what extent to elimination of separate discriminatory monopolistic charges, would make an interesting study. Were cash-indemnity the rule instead of service, monopolistic charging would remain.

The Farm Security Administration conducted experiments with prepaid medical care for its clients for a number of years. The plans set up were financial failures, but subscribers benefited and their physicians benefited. The first year's report of one plan shows a rate of 1,409 medical treatments per thousand members, which is to be compared with a rate of 526 treatments per thousand members of the general rural population.[34]

The medical profession sanctioned these plans as long as they were approved by the local medical society. Approval was usually forthcoming; the federal subsidies that were necessary to keep the plans afloat meant fewer unpaid medical bills. For instance,

"One physician in Ohio told of 36 families, now members of the unit, who, prior to the establishment of the FSA plan, had received service from him.

[32] See Michael M. Davis, "Health Insurance Plans under Medical Societies," *Medical Care;* I. Vol. III, No. 3, August 1943; II. Vol. IV, No. 1, February 1944.

[33] Margaret C. Klem, "Medical Services Provided under Prepayment Arrangements at Trinity Hospital, Little Rock, Arkansas, 1941," *Social Security Bulletin,* May 1947, p. 8.

[34] Mott and Roemer, *op. cit.,* p. 418.

Of total charges of $900 only $150 could be collected. If these families had had a group plan at that time, he would have received about $700 at the present rate of payment."[35]

The FSA prepayment plans were doomed to financial failure because they were limited to persons with high medical needs and low incomes. The purchasing power of any prepayment plan is limited by the size of its clientele, the rate of illness, and the levels of premiums the subscribers can pay. Needless to say FSA clients could not afford much even in monthly instalments; not nearly enough to buy themselves complete health care. Added to this, membership was voluntary, and membership became highly correlated with incipient need for treatment. Prepayment can pool a group's risk, but it cannot raise the level of the pool.[36]

The Problem of Concentration

"Under any system, if a doctor is a good one, he's bound to go where he can make a good living. Under the present system of individual fees-for-service, doctors go where folks have dough."[37]

This quotation gives an important reason for the concentration of doctors—and other health facilities—in areas of high per capita income. The quotation suggests that equalizing effective demand for medical care would automatically bring about a distribution of health services more in accordance with physiological need. This is too much to expect, however. In the long run, equalized medical purchasing power would lead to a far more equal distribution of medical facilities than we have at present, but there would still exist differences in locating factors for physicians and other mobile medical services.

The very existence of crowded cities is an attractive force for medical centers. More people close together mean more chances to treat rare and interesting diseases; highly specialized personnel will still prefer to locate near persons and equipment highly specialized and complementary. The dispersed nature of rural populations means that medical facilities to serve them can never be the same as those best fitted for urban areas. Properly planned to meet local

[35] Franz Goldmann, M.D., "Medical Care for Farmers," *Medical Care*, Vol. III, No. 1, February 1943, p. 29.

[36] An interesting study is that of Robert L. McNamara and A. R. Mangus, "Prepayment Medical Care Plans for Low-income Farmers in Ohio," Agricultural Experiment Station Bulletin 653, Wooster, October 1944.

[37] Paul de Kruif, "*Kaiser Wakes the Doctors*," Harcourt, Brace, New York, 1943, pp. 78–79.

conditions, however, rural health services can provide most of the necessary treatments, and unusual cases can be sent to urban centers.[38]

Equalizing purchasing power is a prerequisite for equalized medical service, but it is not sufficient, for hospitals do not grow like mushrooms. In the short run, medical facilities required in medically impoverished areas can be supplied through no other means than public funds. This is the objective of the Hospital Survey and Construction Act of 1946, which calls for a survey of the hospital needs of every state, and for grants in aid for construction of hospitals in areas not adequately served. A section of the law requires that the community needing a hospital be wealthy enough to support it, once built. The effectiveness of this law naturally depends upon a device for equalizing medical purchasing power; many communities needing hospitals cannot now afford their support.[39]

The dimensions of the differences between farm and urban income are greater than one might suppose.

"Passing over the strikingly low prewar farm income figures revealed by the 1939 Census of Agriculture and coming up to the period when the war was having a marked influence on farm incomes, we may recall that in 1941 half of all farm operators had annual net cash incomes of less than $760 per family, including income from all non-agricultural sources. As the war went on, farm income soared to unprecedented heights, but the disparity between farm and city income levels was still far from eliminated. In 1943, when farm income was approaching its peak, the total net income from all sources of persons on farms was only 12 percent of the national income, although farm people made up 20.5 percent of the population that year. The serious disadvantage of the families looking to the soil for their main livelihood, moreover, is seen in the remarkable fact that the per capita net income in 1943 of all persons in the United States not living on farms was twice as high as persons on farms."[40]

Differences in medical buying power are regional differences, rural-urban differences, farm *versus* non-farm differences; they are differences that allow large communities to enjoy one level of adequacy of medical care, and pen up other large communities at lower levels. No private voluntary insurance plan can equalize

[38] For a plan of rural health centers and hospitals, organized in a state-wide network with supporting city hospitals and medical centers, see "Hospital Resources and Needs," *Report of the Michigan Hospital Survey*, W. K. Kellogg Foundation, Battle Creek, Mich., 1946.

[39] Written statement submitted by the U. S. Public Health Service, Hearings on S.614, May 4, 1949.

[40] Mott and Roemer, *op. cit.*, p. 479.

these levels. Localized plans—even one with an entire state for its scope—can do no more than equalize risk within the area covered. No such plan can raise the buying-power for the group as a whole. This is a compelling argument for a national system of equalizing medical buying power, a system inclusive of all areas and all communities, all risks pooled in one fund, and the purchasing power of the fund made available for the benefit of everyone. This is the type of solution envisaged by the Administration in its proposal for compulsory national health insurance.

Compulsory health insurance would be administered as part of the nation's social security framework. Payroll deductions in proportion to income would comprise the cost to the individual. Benefits would come in the form of comprehensive services; practitioners and hospitals would be recompensed by the appropriate administering agency. For employed persons, costs would be close to the average now paid by all families for medical care. This means elimination of uncertainty at no added average cost. Complete coverage, healthy persons along with sickly, guarantees a favorable risk ratio.

According to an official source, "Contributions equivalent to about three percent of annual earnings would pay for adequate basic medical and hospital services for both workers and their dependents. A more comprehensive system would cost the equivalent of about four percent. These costs would be no more than now is spent by families on the average. They are less than the average expenditure by families in the low income groups, since, contrary to the general impression, low-income families spend, on the average, a larger proportion of their incomes for medical care than families in better circumstances, though—because of their more frequent and severe illness—they receive much less in relation to what they need."[41]

For everyone, compulsory health insurance should plow down the hills of unpredictable cost and fill the open spaces with a regular premium keyed to income. The same levelling would apply to medical purchasing power interpersonally; the city man with a dependable salary would have as much ability to pay a doctor as a man trying to dry-farm in New Mexico. This alone would not bring the same care to each man, of course, but one barrier would be removed.

[41] I. S. Falk and Wilbur J. Cohen, "Social Security for Farm People," this *Journal*, Vol. XXVIII, No. 1, February 1946, pp. 93–94.

Farmers stand to gain from this type of inter-regional levelling of purchasing power. Whereas the national average expenditure for medical care is about four percent of the family's income, a study indicates that in 1941 medical care was taking 8.7 percent of the average farm family's net cash income.[42]

The Social Security Administration estimates that there is now an excess capacity in doctors' services of about 25 percent. An immediate effect of compulsory national health insurance can be expected to be an increase in health services supplied by some such amount.[43] In the longer run more doctors and hospitals would be needed, and these much better distributed. With national compulsory insurance, there would be the purchasing power to hold in place medical service facilities properly planned to serve the people who need them.

The Administration's Bill

Bills for compulsory health insurance of the same general nature have been introduced by Democratic members of Congress since 1938.[44] Since 1945, with passage looming as a possibility, the medical profession has become increasingly active in opposition to these bills. The profession's arguments have not been dignified by presentation of facts and their logical discussion. Rather the medical contentions have been couched in emotionally-charged adjectives, and in allegations of insidious motives. For all the furor, there is nothing really new about the Administration's present bill, except that it might pass.

In view of the foregoing analysis of the medical problem in the United States, it is of interest to dissect the Administration's current national health bill title by title.

Title I declares the existence of a shortage in medically-trained personnel, and provides for grants to states for medical scholarships, and to medical schools. The existence of a shortage is largely predicated upon the increase in effective demand which would follow enactment of national compulsory health insurance.

Title II provides for an acceleration of research into certain prob-

[42] Mott and Roemer, *op. cit.*, p. 308.

[43] George Soule, "The Costs of Health Insurance," pamphlet published under the auspices of the Committee on Research in Medical Economics, Inc., New York City, and the Public Affairs Institute, Washington, D. C., April 1949.

[44] Harold Maslow, "The Background of the Wagner National Health Bill," *Law and Contemporary Problems*, Vol. VI, No. 4, Autumn 1939, provides a running start on the legislative history of compulsory health insurance.

lems of poliomyelitis, diabetes, arthritis, epilepsy, and other diseases.

Title III amends, extends, and increases authorized appropriations under the Hospital Survey and Construction Act for hospital construction in underprivileged areas.

Title IV provides special aids for rural and other shortage areas. These are,

Grants and loans to trained personnel to encourage their moving to underprivileged areas.

Grants to aid construction or operation of group practice facilities, clinics, hospitals, etc., including ambulances and mobile clinics.

Grants to enable professional personnel in shortage areas to return to medical centers for refresher training.

Grants and other aid to farmers' experimental health cooperatives.

Title V provides for grants to states for public health work.

Title VI provides for research and grants to the states for maternal and child health services.

Title VII provides for compulsory health insurance, but without taxing clauses. These are reserved for a separate bill. Fiscal arrangements are to be handled through a "Personal Health Services Account" on the books of the Treasury, into which would be paid all contributions from covered persons, and what appropriations become necessary. Administration is provided through state channels, and subordinate "health-service areas."

Nothing comparable in scope to the Administration's health plan has been proposed by any other bill before Congress. The novelty and potential difficulties of the plan proposed must be measured not by past methods of organizing medical care, but by the medical needs as yet unmet. To contradict Dr. Fishbein, we *must* think also of the quantity of medical care provided in our society. The cooperation of physicians is essential to any plan of medical care, of course, and there is no reason to believe that such cooperation would not be forthcoming in the proposed national insurance system. For doctors don't gain when they lose patients with several perfectly good years of life left in them. It would be better all around, perhaps, if the medical profession were more prone to cooperate in the solution of this "medical" problem, and less prone to preserve the past by ignoring the present.

THEORY: DEFINITION AND PURPOSE

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I

AT THE last National Agricultural Outlook Conference speakers were heard repeatedly making observations like the following:

(1) "We do not engage in theoretical research, ours is the job of analyzing the facts in such a way as to provide practical guidance to farmers, farm organizations and other agricultural agencies."
(2) "We use outlook information as a means of attracting attention and stimulating interest on the part of farm audiences so that we can then teach them economic principles."

Concealed in these two statements is a number one confusion in the minds of too many professional and academic economists. It is the purpose here to explain this confusion and to show some of its consequences, for practical theory is a generalization of means-consequence relationships that serves as an aid in determining a future course of action.

Why would any research economist ever say that he doesn't engage in theoretical research? And why would anyone think of the teaching of economic principles as a goal distinct from formulating a future course of action? Every scientific effort to analyze the facts so as to anticipate the future and guide action requires the use of a variety of concepts or mental tools. And an economic principle is an expected repetition of a past relationship that has practical significance for future action.

The only reason a research economist ever says he doesn't engage in theoretical research is to be found in the double meaning of the word "theory." It can mean either "pure" theory or "practical" theory. When he makes such a statement, the word to him means pure theory, which is "intellectual speculation without reference to practical application."[1] This is the same meaning as that implied by another economist who says that "the notion that economics is a science explanatory of behavior is the most important single con-

* This is to acknowledge constructive suggestions and criticisms from Howard L. Parsons, D. B. DeLoach and other colleagues and friends, especially those of the Graduate Seminar at the University of Wisconsin.

[1] Stated orally to the writer by Professor Ragnar Frisch, University of Oslo.

fusion in the methodology of the science."[2] Pure theory is logical reasoning from assumed premises. Such reasoning need not describe reality nor serve any useful purpose.

Practical theory, on the other hand, is a generalization that is developed as a basis for judgment with respect to action. It is a forecast of future consequences for the purpose of dealing with practical problems.[3] Thus, two reasons exist for the persistence in popular discussion of a conflict between theory and practice: (1) The fact that theories never intended to have practical significance satisfy the purposes of the theorist, and (2) the fact that theories intended to serve practical purposes often turn out to be wrong.[4] To deny any connection with the "theoretical" and to lay claim only to the "practical" is merely to disavow either a pure theory that happens to be useless for any kind of action or a theory that was intended to be useful and turned out to be a mistake. In other words, to be theoretical is not necessarily to be impractical.

If we can assume that those who would distinguish between outlook and the teaching of economic principles are interested only in practical theory or principles, they are really distinguishing between the kind of forecasting usually associated with outlook information and all other kinds of forecasting. The former is a set of conclusions concerning future prices, incomes and quantities based on an analysis of all the relevant collective influences. The latter, on the other hand, might include among other things the forecasting of an individual farmer's income under alternative assumptions as to how he might manage his own farm—given a set of forecasts regarding the collective influences. In either case, interest in teach-

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[2] Frank H. Knight, *The Ethics of Competition*, p. 279.

[3] " . . . Often the word theory, or theoretical, is a name of reproach uttered by the practical man who claims to be dealing only with Facts . . . . But the practical man is a theorist when he predicts that the prices of stocks will rise and therefore buys as much as he can. If, instead, the prices fall and he is bankrupt, it is not because he is practical but because his theory was wrong. He did not analyze all the facts; . . . did not guide his practice by a correct theory. He was a poor theorizer. Hence the word theory means a correct or incorrect insight among the limiting and complementary factors. It is not a fact, but a prediction of facts. If correct, then it is an insight that will fit all the future facts needed. If not correct, then it is simply a blunder and needs correction." By John R. Commons, *Institutional Economics*, Macmillan Co., N. Y., 1936, p. 102.

[4] But it should not be inferred that practical theory is necessarily impure, bad, or biased; or that pure theory is always useless for dealing with practical problems. The search for "truth for truth's sake" has turned up ideas that later proved to be of very great practical importance. The intention is only to point out that the difference in meaning of the two concepts is so great that the interchangeable use of the word "theory" to convey both meanings is a constant cause of confusion.

ing "principles" might refer only to teaching the "why" of the conclusions developed, so as to give the farmer a proper degree of confidence in them—to avoid a tendency on his part either to take them on faith or to ignore them entirely.

II

Now I have been told by some of my colleagues that any discussion of ambiguities such as those referred to above would be trite so far as most economists are concerned—that it would be a discussion of the obvious. Perhaps so. Yet, it is difficult to escape the conclusion that it is precisely this *failure to distinguish pure theory from practical theory that has resulted in a widespread tendency among economists to apply pure theory to practical problems without making necessary allowances for the premises of such theory.* Untenable conclusions and inferences are reached because the "analytical model" or theory is not fitted either to the facts of the problems or the purposes of the analyst. One of the most persistent sources of fallacies arising from this practice is the indiscriminate use of the "pure competition model" of equilibrium theory in agriculture. And some of the most conspicuous examples to occur recently have been discussions of the "malallocation" of resources and the "inefficiency" of American agriculture.[5]

When economists undertake to compare the efficiency of agriculture with that of industry, or to form some judgments concerning the allocation of resources within agriculture or as between agriculture and industry, they have to decide first what they mean by efficiency, what resources they are talking about, and what their standards are for changing their allocation. The definitions and standards they choose are determined by the purposes they have in mind.[6] If their purpose is merely to engage in an exercise in

[5] Theodore W. Schultz, "How Efficient is American Agriculture," this *Journal*, August 1947.

[6] It is often said that one definition is as good as another provided we use it always with the same meaning. But is this so? Each definition must be fitted to the purpose we have in mind. If our purpose is simply to "speculate"—to find universal, timeless, and absolute "truth"—we can use a pure theory definition and always use it with the same meaning. If this definition were used consistently, the practical man would be told at the outset not necessarily to expect any identity between theory and practice. But if our purpose is to understand and deal with a practical problem, the meaning we give the term must fit that purpose. We must define theory as "mental tools useful for dealing with practical problems." Under this definition, "mental tools" that turn out to be useless in practice are bad theory—at least for the purpose at hand.

logic, it makes little difference what definition or standards they choose, so long as everything they say is logical. But when the practical implications of their analyses are: (1) That American agriculture is inefficient; (2) that resources are more badly allocated in agriculture than in the rest of the economy; and (3) that the economy generally would be more efficient if it functioned in conformity with the pure competition theory—when these are the implications of their reasoning, my reply is they had better examine the criteria by which their judgments were reached.

III

First, let us consider the conclusion that American agriculture is inefficient. This conclusion is derived by arbitrarily selecting for the meaning of "efficiency" the meaning associated with pure competition theory, and then implying that others either do mean or should mean the same thing when they say American agriculture is efficient.

This pure competition meaning of efficiency is, "When all resources in the economy are allocated so that no further gain can be achieved by an additional transfer of a factor or product from one use to another use, 'maximum economic efficiency' is achieved. This would represent the ideal, the general equilibrium of economic analysis."

It is recognized, of course, that there are other meanings of efficiency such as output of corn per acre of land, per man hour of labor, etc. But these are called "technical" rather than "economic." Yet, it is precisely these so-called technical meanings that others have in mind when they say American agriculture is efficient. And they cannot be proved wrong by implying that they should mean something else. No evidence has ever been presented to show they are wrong if the term "efficiency" is given the same meaning as they attach to it.

Under the pure competition model, it is possible to identify *rate* of output per unit of comparable input with *value* of output per unit of comparable input by the assumption of equilibrium. When the economy is in equilibrium, goods exchange in proportion to the marginal *dollar* cost of producing them. This becomes identical with marginal *labor* cost because it is assumed that comparable labor can and does flow promptly from one employment to another so that at equal rates of pay there is no discrepancy between dollar

cost and labor cost. But this is all pure theory and requires drastic modification for practical use.

When the pure competition theorists talk about "economic inefficiency" of American agriculture, they do not mean a low *rate* of output per unit of input; they mean "waste" of resources, largely of manpower. They mean that some agricultural labor either is used to produce goods that are less wanted than other goods or is not used to produce any goods—*in which case it never becomes "input."* They mean that agriculture is "inefficient" because it adopted "gadgets" and "improved farm management" faster than it reduced its birthrate, and that the resulting surplus farm population has failed to go to town to make more "gadgets." They mean that agriculture is "inefficient" either because its *total* output of agricultural products has been too great or because too large a total of agricultural labor is producing nothing.

That these conditions exist among the rural population is in no sense an "agricultural" phenomenon as such; nor is there any evidence to suggest that over any business cycle any larger proportion of available manpower is unemployed or underemployed in agriculture than in the rest of the economy. Economic efficiency in this sense is "double-barreled" and applies to the whole economy, the nonagricultural as well as the agricultural segments. It not only refers to the aggregate output of all goods and services, but also to the "proportioning" of that output as between the different goods and services. Under the first meaning, a given economy might be more "efficient" than another because it works longer hours rather than because it is more effective per hour. And under the second meaning, relative prices can be used as a measure of a "proper" proportioning only under the twin assumptions of pure competition and virtuous human beings. If any "moral" value whatever attaches to this meaning, it is more than doubtful that the economy would be more "efficient" if some of the boys and girls from our more efficient Iowa farms moved to town to become bartenders and barmaids merely because they could make more money at these occupations.

In any event, no such tortuous reasoning is required to recognize the obvious fact that at least since the Civil War there has been chronic involuntary underemployment and unemployment of manpower in the South. This is the consequence of a complex of social, political, racial and economic issues that cannot be treated by

merely referring to it as the "cake of custom." Actions on the civil rights and educational fronts must at least accompany those on the "economic" fronts. It is not an "agricultural" phenomenon as much as it is a "social" phenomenon. It is "dichotomous" maladjustment in the sense that it refers to both farm and nonfarm populations.

The tendency to think of it as "agricultural" rests on an assumption that either relatively or absolutely more labor power on farms than off farms is "wasted." If this is true, the evidence to support it is far from conclusive. And even if it were a demonstrated fact, it would have nothing to do with the question of agricultural efficiency as a rate of output. There is no more reason for counting the unused or underused labor on farms as agricultural "input" in calculating the agricultural efficiency ratio than for counting it as manufacturing input in computing the industrial efficiency ratio. For "social" reasons it is not input for either agriculture or industry. All of which suggests the need for explaining another fallacy that logically follows from uncritical use of pure competition theory—that a purely competitive society would be more efficient than the one we now have.

IV

This, again, may be a "valid" conclusion if the assumptions of pure competition theory are granted, but it is not "true" in any practical or pragmatic sense. When an economist implies that it is true as well as valid he is living in the last century when the assumption in classical doctrine that the productive resources of capital and labor were so fluid that they flowed readily from one profit-making opening to another was more nearly supported by observable facts than it is today. It is much less true today of a large part of American industry, where mass-production methods have led to the creation of great units which alone can exploit the new technology. If one believes that our economy as a whole is more efficient because of this kind of exploitation of modern technology, one cannot at the same time believe that "atomistic" competition would be most efficient. To do so, would be to believe in the "fallacy of nonconcomitant or inaccessible options." Even if the ideal of substantially pure competition were attainable or accessible, one cannot hope to enjoy its benefits at the same time

he enjoys those of mass production "fair" competition. In plainer words, we cannot have our cake and eat it too.

If our national policy of fostering "reasonable" competition in order to realize the "social" benefits of modern technology—a policy affirmed by a long succession of Supreme Court decisions—is our deliberate choice, we must expect both the continued existence and the periodic recurrence of substantial "pockets" of "wasted" manpower. That is, we must expect it until these pockets become so large as to be unmanageable. The Maximum Employment Act of 1946 is recognition of the necessity for keeping them manageable. Under pure competition, of course, there would be no need for such measures.

The "social" costs of the policy we are following include our various social security measures, minimum wages for labor, parity prices for farmers and many others. We should do everything possible to eliminate these pockets of underemployed and unemployed manpower, but it would be something less than realistic to believe this can be done in conformity with the pure competition model—unless we are prepared to sacrifice at the same time the advantages of mass production technology with its inevitable accompaniment of "administered" prices.

Herein also lies a fallacy of all "forward" price proposals involving "equilibrium" prices and compensatory payments—at least so far as the allocation of manpower between agriculture and industry is concerned. If the compensatory payments were "fair" they would be higher to low-income farmers than to high-income farmers, and they would tend to remove the economic pressure on such farmers to migrate to nonfarm employments. Within agriculture, of course, resources will tend to be allocated in accordance with the "pattern" of prices, at least to the extent that agriculture is actually competitive. But even here prices alone cannot be depended upon to do all that is needed or desirable. They will be effective only where both the *opportunity* for choices and the *willingness and ability* to make choices exist.

To say that agriculture is less efficient than industry because the *value* of output per man in agriculture is less, is precisely like saying that schoolteachers are less efficient than bricklayers because they receive fewer dollars per person. And to say that American agriculture is inefficient is to imply that it can be made more efficient.

Any realistic discussion of improvements in efficiency must take into account the available alternatives. Unless this is done, any talk about inefficiency is mere words without meaning. Practical public policy can never be derived by "comparing the idealized conditions . . . and actual circumstances . . . and developing the necessary positive steps required to eliminate the discrepancy."[7] Excessive preoccupation with the "ideal" is the usual consequence of formal model or pure theory approaches to public policy. An *attainable ideal* is always the *best available choice*. The principles by which action with reference to choices is formulated is practical theory.

In summary, then, theory is of two kinds: Pure theory and practical theory. When the lessons learned from pure theory are incorporated into practical theory, full account must be taken of the *assumptions* underlying the pure theory and appropriate adjustments should be made therefor. If this had been done by those currently discussing the "inefficiency" of American agriculture and the malallocation of resources in agriculture it is more than doubtful that they would have arrived at the conclusion that American agriculture is inefficient, they probably would not have implied that resources are more badly allocated in agriculture than in the rest of the economy, and they would not have left the impression that they think a freely competitive economy is more efficient than our "administered price" or "reasonably" competitive economy. If their purpose was to deal with some of the practical questions raised by these issues, they would have chosen definitions of terms to fit that purpose. For practical theory is not the mere logic of mathematics which is the language of numbers; it is also the *meanings* of words.

Karl Mannheim, in his *Ideology and Utopia*, clearly describes the causes of the theory-practice conflict when he says, "The fact that sciences are cultivated in academic surroundings constitutes a danger in that the attitudes adequate to the understanding of an actual sector of human experience are suppressed in the contemplative atmosphere which prevails in academic institutions. Today we almost take it for granted that science begins when it destroys our original approach and replaces it by one which is foreign to living experience. This is the most important reason why practice

[7] D. Gale Johnson, *Forward Prices for Agriculture*, The University of Chicago Press, 1947, p. 11.

cannot profit by this kind of theory. This creates a tension between theory and practice which is increasingly aggravated by modern intellectualism. Summing up the main difference between this contemplative, intellectualistic point of view and the living standpoint which is accepted in the realm of practice, we might say that the scientist always approaches his subject-matter with an ordering and schematizing tendency, whereas the practical man—in our case the political person—seeks orientation with reference to action. The desire for concrete orientation leads us to view things only in the context of the life-situations in which they occur. A schematically ordered summary tears apart the organic interconnection in order to arrive at an ordered system which, although artificially constructed, is nevertheless occasionally useful."

ACTUARIAL STRUCTURES FOR CROP INSURANCE

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CROP insurance is conceived as a device which can be used by a farmer to stabilize his income against partial or complete crop failure to the extent that this failure is due to adverse weather or to related adverse physical crop conditions which are beyond his control. As such a device, or with various modifications, crop insurance has been tried in every major country in the world. The forms, coverages, and general provisions have varied widely. In some cases, the attempt has been made to provide general protection against any or all factors which cause low yields. At other times protection has been restricted to specific risks such as hail, flood and insect damage.

The method of sponsorship or of financial support has varied. In the United States until the passage of the Federal Crop Insurance Act in 1938 all attempts at crop insurance were by private companies. But in other countries crop insurance nearly always appeared under government sponsorship. In most cases it has been offered to farmers as a voluntary contract. In some other cases, notably in Japan and in the U. S. S. R., it has been compulsory. In the Canadian prairie provinces a compulsory wheat tax plan having some insurance features has been in operation since 1939. In the United States the Federal Crop Insurance Act passed in 1938 offers the outstanding example of an attempt to apply a voluntary crop insurance plan over a wide area.[1]

* This paper presents some of the principal findings and conclusions which are contained in my Ph.D. dissertation, "The Theory of Crop Insurance," which was submitted to the University of Chicago in 1948. I am grateful for the assistance and suggestions given to me by several of my colleagues. I particularly wish to express my appreciation to D. Gale Johnson who, as chairman of the dissertation committee, gave me valuable advice in the development of the dissertation; to T. W. Schultz who encouraged me to proceed with my original suggestion and who carefully reviewed this paper; to Milton Friedman whose rigorous criticism helped me to improve my dissertation manuscript; to Rainer Schickele, M. M. Kelso and G. E. Korzan who have given me the benefits of their comments in reviewing this work. Several other friends and associates have helped me by their appraisal of certain points.

[1] A large number of studies of crop insurance, of a comprehensive and empirical nature, are available. Some of the recent articles which have been found most enlightening are: F. Arcoleo, "Crop Insurance," *International Review of Agriculture*, Rome, International Institute of Agriculture, XXXI (1940), 271–76E, 306–16E; J. C. Clendenin, "Federal Crop Insurance in Operation," *Wheat Studies of the Food Research Institute*, XVIII (1942), 227–90; Dale E. McCarty, "Wheat Yield Insur-

In spite of rather general and enthusiastic support of the idea of voluntary crop insurance and in spite of strenuous efforts to establish such programs, in almost every case voluntary crop insurance plans have failed on at least one of two counts. Either they have failed to attract the large majority of farmers or they have failed to approximate a self-supporting situation.[2]

The failure to attract participation of the majority of farmers suggests that many farmers have not looked with favor on the premium-indemnity schedule and may have considered that they could maximize their income over time by remaining outside the program.[3] The failure of the plans to become self-supporting suggests that adverse selectivity must have been widespread, farmers with better than average expectations of collecting indemnities being the ones most frequently attracted to the program. This failure of voluntary crop insurance raises two basic questions: Is it possible to design and to administer these programs so that they will be attractive to the large majority of farmers and so become self-supporting? Or will it be necessary, in order to obtain widespread participation, to turn to compulsory insurance or to insurance that is heavily subsidized? A strong case may be presented

ance," this *Journal*, XXXIII (1941), 664–67; R. E. Motherwell, "A Study of Crop Insurance," *Report of the Saskatchewan Reconstruction Council*, Appendix 3, Regina, Saskatchewan 1944; Ray F. Pengra, "Crop Production in the Semi-Arid Regions on Insurable Risk," this *Journal*, XXIX (1947), 567–70; President's Committee on Crop Insurance, *Report and Recommendations of the President's Committee on Crop Insurance*, House Document No. 150, 75th Congress, 1st Session, 1937; B. D. Raskopf and E. B. Fickle, *Cotton Crop Insurance in Tennessee and United States*, University of Tennessee Rural Research Series, Monograph No. 198 (1946); Raskopf and Fickle, *Wheat Crop Insurance in Tennessee and United States; ibid.*, No. 197 (1946); F. H. Sanderson, "A Specific-Risk Scheme for Wheat Crop Insurance," this *Journal*, XXV (1943), 759–76; Andrew Stewart, "Stabilization of the Income of the Primary Producer," *Canadian Journal of Economics and Political Science*, XI (1945), 359–72; S. E. Wrather, "Adaptation of Crop Insurance to Tobacco," this *Journal*, XXV (1943), 410–18. Since 1937, extensive congressional hearings have been held on the subject of crop insurance. Several issues of *The Agricultural Finance Review* and *The Agricultural Situation*, published by the United States Department of Agriculture, have carried short articles on this subject.

[2] Exhaustive study of the references listed in the preceding footnote and other source material serves as background for this statement. Experience of the Federal Crop Insurance Corporation (hereafter abbreviated as FCIC) may be cited as an example. The crop year 1947 was the first time that premium collections of the FCIC exceeded indemnity payments on combined operations for all commodities. In this year, however, wheat acreage insured was 72 percent of total acreage insured among all crops, and wheat yields generally were well above average. Up to 1947, the losses incurred in the writing of insurance totaled about 90 million dollars in addition to operating expenses paid for by current appropriations. At the height of participation in the wheat program in 1940 about 20.7 percent of the seeded acreage of wheat in the United States was insured.

[3] Cf. Clendenin, *op. cit.*, pp. 260–61.

for compulsory crop insurance or for insurance involving subsidy.[4] Compulsory crop insurance, however, may be resisted by farmers on social-political grounds and on the grounds that premiums, at various times, would exceed the discounted value of the probable indemnity. Insurance involving subsidy also may have important adverse effects on the efficiency of resource utilization.[5] Therefore, a voluntary contract not involving substantial subsidy is to be preferred.

Forms of Voluntary Insurance

In the discussion which follows, the forms which voluntary crop insurance plans may take are outlined; and the conditions necessary to establish a crop insurance program to meet actuarial requirements are examined. Such a program is defined as fulfilling the following conditions: (1) It would protect a farmer against partial or complete crop failure, to the extent that this failure is due to the adversity of weather and related physical crop conditions beyond his control, and (2) protection would be offered under such a premium-indemnity schedule that all farmers facing similar probabilities for indemnities would be assessed similar premiums. Fulfillment of the latter provision would mean that no farmer would be penalized or subsidized consistently through the use of insurance. Under this condition, the insurance contract could be attractive to any farmer who wished to reduce the income uncertainty caused by fluctuating physical crop conditions and it could be designed to eliminate the necessity for recurring subsidy due to indemnities continuing in excess of premiums.[6]

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[4] For the line which the argument for compulsory insurance might take, see A. C. Pigou, *The Economics of Welfare*, London: Macmillan and Company, 1920, pp. 902–11. The subsidy which would bring about the widespread use of crop insurance on a non-compulsory basis might be considerably less than the amount of money which has been spent on feed and seed loans, direct relief payments, disaster payments, etc.

[5] It might encourage the growing of wheat on land which is "sub-marginal" for wheat production, for instance. Thus it might cause a misallocation of resources toward wheat production. Some cases have been found where flax growing was encouraged by insurance on land on which flax would not be grown in the absence of insurance. Incidentally, feed and seed loans or direct relief may be protested on similar grounds. Too many resources may be funneled into an area in relation to marginal productivity of the land in the area.

[6] Only experience can determine what proportion of farmers would buy such insurance and what size reserves an insurance corporation should carry. There can be little doubt but that an actuarially sound program in the United States would have paid several billion dollars to farmers during the drouth period of the 1930's if a large majority of the farmers of the United States had been insured. Also during

The analysis is restricted to three different plans for crop insurance distinguished by the methods by which premiums and indemnities are calculated. These three plans are called all-risk crop insurance, area-yield insurance, and weather-crop insurance. The conclusions, which may be applied generally, are stated with reference to the United States.

All-risk crop insurance. In all-risk crop insurance a base yield is established for each farm—such as the average yield experienced on that farm in a 10-year period. Insurance is offered to cover either 50 percent or 75 percent of the base yield. If the actual yield in any year falls below the insured yield, an indemnity, equal to the difference between insured yield and actual yield is payable to the insured farmer. Premiums are assumed to be uniform over a county and are based on an estimate of the average indemnity payable in the county over a period of years.[7] For example, if a farmer's average yield of wheat for a 10-year period were 20 bushels per acre, his insured yield at the 75 percent level would be 15 bushels per acre. If he received 10 bushels per acre some year his indemnity for that year would be 5 bushels for each acre insured.

Area-yield insurance. In the area-yield insurance plan, premiums and indemnities are based on the yield received in an area of normally uniform crop conditions which may vary in size from a township or part of a township to a county or more. Indemnities are paid to any insured farmer in any year in which the mean area-yield for the year falls below a specified level (the level may be defined as some percentage of the expected or normal yield for the

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the years from 1941 to 1948, aggregate premiums would have exceeded indemnities by several billion dollars. Aggregate gains vs. losses in any year or over a period of of years should not be used as the criterion of success or failure in a crop insurance program. Instead, the analysis must distinguish between the losses which may be due to incorrect actuarial procedure and those which may occur from time to time because of adverse crop conditions.

The use of a compulsory contract is not ruled out in this analysis. Insurance might be made compulsory in some areas through operation of a crop insurance district which might be established under a "crop insurance district law" much as weed districts are now established under a "weed district law." Also lenders might require the use of insurance as a condition for extension of credit. But under any case the first task is conceived as one of perfecting the actuarial structure.

[7] The FCIC attempted to establish an individual premium rate for each farm based on the probabilities of indemnity for that farm. After a few years' trial it was decided that this method was not practical because of inaccurate or inadequate data and by 1946 nearly all crop insurance in the United States was sold under uniform county-wide premium rates. In 1947 in Chouteau County, Montana, for example, the county-wide premium rate for insuring winter wheat on summer fallow for 75 percent of the base yield of the farm was 1.8 bushels per acre.

area). For example, if the normal yield of wheat of an area were 20 bushels per acre, if the yield in a given year were 16 bushels per acre, and if the insured were a wheat farmer insuring for the normal area-yield, he would receive the equivalent of four bushels of wheat for each acre he insured regardless of his wheat yield on his farm. If he were insured for 90 percent of the normal area-yield his insured level would be 18 bushels per acre and his indemnity would be two bushels per acre. All farmers in an area would be offered a common schedule for insuring area-yields which would offer options of insuring for normal area-yield, for 90 percent, for 80 percent, and on down to about 50 percent of the normal area-yield. Corresponding to this schedule there would be a schedule of premiums specifying the premium to be charged per acre. The premium rates would be based on the estimated amount of indemnities payable under each of the indemnity options.

Weather-crop insurance. In the weather-crop insurance, premiums and indemnities are based on the weather records of the locality in which insurance is to be sold. Indemnities would be paid to any insured farmer in any year in which the weather, in terms of some measureable criterion, is beyond certain limits of tolerance. For example, if the mean annual rainfall in an area were 25 inches, which is assumed to be near the optimum for crop production in this case, a farmer might wish to insure against the possibility of occurrence of less than 18 inches or more than 32 inches of rainfall. He may be offered an indemnity schedule showing the indemnity he would receive providing mean annual rainfall is 17 inches, 16 inches, 15 inches, or less, and 33 inches, 34 inches, or more. Additional schedules could be provided for farmers who wished to insure against the probability of rainfall being less than 20 or more than 30 inches, less than 16 or more than 34 inches, and so on. For each schedule, a definite premium would be assessed. The premiums and indemnities could be stated in terms of amounts of produce or money for an insured acre. Factors in addition to rainfall such as temperature, evaporation, or hail might be included in the formula.

The process of analysis which follows is (a) to apply stated assumptions to each of the forms of crop insurance, and (b) to relax these assumptions one at a time, observing the effect of this relaxation on the respective crop insurance program.

All-Risk Crop Insurance

Basic assumptions. The first assumptions are (1) that the secular trend value for yields on each farm in a county is zero, (2) that the average deviation of yields from the mean is the same for all the farms, and (3) that the mean yield is the same for all the farms. If these assumptions are realized the premiums paid by a farmer using all-risk insurance should be equal to indemnities over a long period of time.[8] No net gain or net loss should be experienced. The effect of such insurance would be to reduce the fluctuations in income caused by yield variations.

As the first assumption listed above is relaxed, it is assumed that the level of yields changes on individual farms. Under the new assumption, farmers with increasing yields would find that the aggregate premiums for a 15- or 20-year period would be in excess of the sum of the indemnities and conversely for farmers with decreasing yields. Without some compensating device, the first group of farmers would have net losses and the second group would receive windfall gains through the use of insurance.

The use of a moving average as the base for insured yield and use of a system of dividends for farmers with low indemnities might reduce the inequities otherwise found in the upward or downward trend. The system of dividends could not eliminate the inequity completely, however, because of the lag inherent in the adjustment. A more serious criticism which applies to the use of a moving average is that insured yields would not be consistent with yield probabilities. After a series of poor yield years on an individual farm, for instance, insured yields would be reduced to the point where a farmer should drop the insurance.[9] After a series of good years the insured yield might be so high that the farmer would have a good chance of obtaining a windfall gain if he should continue with in-

[8] This would be true under the condition that administrative expenses, or loadings, are paid by the Federal Government. If administrative expenses are paid out of premium receipts, then gross premiums, equal to net premiums plus loadings, would be equal to aggregate indemnities. It is a matter of policy, which is not examined at this point, whether administrative expenses should be paid out of gross premiums or be paid by the Federal Government. The latter is assumed but this assumption does not appear as a necessary condition in the analysis.

[9] In many counties in Montana, the Dakotas, Nebraska, and Kansas, poor crops were experienced in 1940 and 1941. The FCIC raised premium rates and cut insured yields on the basis of this experience at the same time that prospects appeared good for the 1942 crop. As a result participation declined sharply, Cf. Clendenin, *op. cit.*, p. 261.

surance. Under such conditions an adverse selectivity is probable.[10]

When the second assumption is relaxed and it is assumed that the average variation of yields is not the same for all farms, the farmers having the larger yield variations would receive larger indemnities in years of poor crops than those farmers with smaller yield variations. The difficulty of working out an individual actuarial schedule for each farm which would reflect this situation is readily apparent from a study of farm yield data. Even if this could be done the desirability of doing so is questionable because a series of unusually wide yield variations on a farm, or a series of low yield variations, might cause the calculated indemnity probability to be at variance with the actual yield probability.

The individual farms in a given area may differ widely in respect to average yields.[11] When the third assumption is relaxed various degrees of the following situations may develop. If the actual deviation from the mean yield in bushels or pounds is the same for all farms, the farmers with low average yields would receive indemnities more often and in larger amounts than the farmers with higher yields.[12] If the deviation of yields in terms of percentage of mean yields is the same for all farms, the farmers with the higher average yields would receive larger indemnities in poor crop years than the farmers with low average yields. In order for there to be no inherent cause for an adverse selectivity, the indemnity for

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[10] Under this condition an adverse selectivity could develop through time independently of the type of adverse selectivity which might develop among a group of farmers in any particular year. It should be noted that the use of early deadlines for insuring or of a "continuous" contract could not completely overcome this difficulty. Early deadlines have been recommended elsewhere. See Clendenin, *op. cit.*, pp. 248–50. In 1946 the FCIC instituted a "continuous" contract which would be subject to annual cancellation by either the farmer or the corporation. A three-year contract was being used for wheat. See *Agricultural Finance Review*, IX (1946), 71.

[11] The following data are presented for all farms on the AAA listing sheets in Chouteau County, Montana, to indicate the wide range in yields which may exist in some cases:

Average Yield 1925–32 Bushels per Acre	No. of Farms
0–5	212
5.1–10	496
10.1–15	320
15.1–20	126
20.1–25	64
Over 25	51
Total	1,269

[12] This conclusion is valid only under the condition that farmers insure for less than their mean yield, say 75 percent of mean yield or less.

each class of farmers ranked according to yield would have to be potentially equal for the entire universe of farms which were eligible for a common premium rate. The fulfillment of this condition appears to be out of the question.[13]

Effect of increasing accuracy of farmers' expectations. If farmers grow more than one crop and if they vary the acreage of crop to be insured from year to year, an additional factor involving adverse selectivity may appear. In years when yield prospects are relatively poor, the discounted value of the crop in terms of expectations will be greater for an insured crop acre than for an uninsured acre. In years when yield prospects are relatively good, the opposite case will exist because the insurance premium will appear as a cost and the net discounted value of the crop in terms of expectations will be less for an insured crop acre than for an uninsured acre. In the former case, therefore, there would be a tendency on the part of the farmer to increase the insured acreage and in the latter case there would be a tendency to reduce the insured acreage. If insured acreage on a farm can be varied, the tendency for an adverse selectivity to develop would depend on the extent to which crop yields can be predicted prior to seeding.[14]

Two factors may enter into the farmer's yield estimate: (1) general weather conditions, soil moisture, insect conditions, etc.,

[13] There may be a tendency toward the fulfillment of the condition although the relationship might be termed highly haphazard. If the standard deviation of yields is higher on high yielding farms than on low yielding farms, and if the coefficient of variability is greater on the low yielding farms than on the high yielding farms, there would be a tendency toward fulfillment. There is some evidence that such a tendency does exist. The following data, for example, are from a study conducted at experiment stations in the Northern Great Plains during the years 1906–1935 and the data refer to yields per acre of spring wheat:

Eight high yielding stations:	$\bar{X}=16.9$	$\sigma=10.8$	$V=64$
Five low yielding stations:	$\bar{X}=11.9$	$\sigma=8.9$	$V=75$

See John S. Cole, *Correlations Between Annual Precipitation and the Yield of Spring Wheat in the Great Plains*, Washington: USDA Technical Bulletin 636 (1938), pp. 26–28.

It should be noted that the above is one of the causes of adverse selectivity cited which could be avoided by the establishment of an individual premium rate for each farm. The establishment of individual premium rates has been found "impractical," however, because of inaccuracies in individual farm yield data and because of the changes which have occurred in the normal level of individual farm yields. Cf. (above) footnote 7.

[14] In the Great Plains, the ability to predict yields prior to seeding or in the spring appears to be increasing through the use of information obtained from recent investigations. See A. L. Hallsted and O. R. Mathews, *Soil Moisture and Winter Wheat with Suggestions for Abandonment*, Kansas Agricultural Experiment Station Bulletin No. 273 (1936) and Ray F. Pengra, "Crop Production in the Semi-Arid Regions and Insurable Risk," this *Journal*, XXIX (1947), 567–70. Cf. (below) footnote 21.

and (2) individual tilth condition of each individual field. The insurer might prevent an adverse selectivity from developing on the basis of the first factor by providing only a long term contract and by writing insurance for a definite number of acres each year. It would be practically impossible to prevent an adverse selectivity from developing on the basis of the second factor because under any kind of contract that might be written it would be necessary to allow a farmer freedom to insure part but not all of the various fields in his farm. The rational thing for a farmer to do would be to place insurance on those fields on which the probability of indemnity is relatively high. If all farmers have an equal opportunity to select fields in this manner, no adverse selectivity would result among farmers and premium-indemnity rates could be made to reflect such a situation; but a conclusion based on general observation is that farmers do not have an equal opportunity to make such choices. Some will have relatively poor yield prospects on some fields in particular years in comparison with yield prospects of some other farmers. The former group may choose to insure the fields on which there may be a high indemnity probability in comparison with the maximum indemnity probability of the other farmers. A larger proportion of the former group than of the latter group may enter the insurance program.

General conclusion. Thus, relaxation of each of the three assumptions first stated—and they must be relaxed in order to consider the conditions in some of the major agricultural regions of the United States—and interjection of the idea of increasing accuracy of farmers' yield expectations, leads to a situation implying adverse selectivity, a type of adverse selectivity which cannot be overcome by modifying the provisions of all-risk crop insurance. Therefore the general conclusion in respect to the all-risk type of crop insurance is that it will work in a satisfactory manner only under a system of conditions so exacting in their specifications that they will be found to rather limited extent in American agriculture. In some low-risk regions, in some areas where yield trends are not pronounced or are not influenced to a marked degree by the action of the individual farmer, and in case of some crops such as perennial fruits, the all-risk insurance may work in a satisfactory manner. But all-risk crop insurance may fail to work satisfactorily over the major part of the farming area, particularly the highest risk area, of the United States.

Area-Yield Insurance

Necessary condition. The basic empirical assumption used in developing the area-yield type of crop insurance is that the mean yield in a year in an area will reflect the physical crop conditions faced by a farmer in the area. While this assumption is not in the form of a necessary condition for the insurer, who may be indifferent in an actuarial sense whether it is fulfilled or not, it represents a condition which must be fulfilled to some degree if a farmer is to receive protection against the occurrence of adverse crop conditions. One method for determining when this condition is fulfilled in an area is to measure the degree of consistency with which each individual farmer's yields vary directly with the area yield. This degree of consistency will depend, to a considerable extend, on the boundaries established for the area and on the homogeneity of the area in production of the crop insured.[15] The closer the correlation between farm and area yields, the more effective area-yield insurance will be in providing the equivalent of yield stability for a farmer in the area.[16] It is not possible on an a priori basis to determine to what extent this correlation exists. Among some two hundred farm cases which have been studied, it would have been possible through the use of area-yield insurance to have reduced the average deviation of gross income on the individual farm, which was due to variations in yields, to a level varying from 20 to 40 percent of what the average deviation of gross income was in the absence of insurance.[17] The average deviation of net income

[15] The ideal area concept to employ in an area-yield insurance program might be that of a type-of-farming area which may be defined as an area within which a particular system of farming is dominant or within which two or more systems are interwoven into a pattern. Within any one area the same pattern of change should exist and the boundaries should be moved when there are changes in ecological factors. Cf. John D. Black, Marion Clawson, Charles R. Sayre, and Walter W. Wilcox, *Farm Management* (New York: The Macmillan Company 1947), pp. 384–86. Type-of-farming studies in which areas have been delineated have been completed and the results published in bulletin form for several states, among which are the following: Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Montana, North Dakota, South Dakota, Texas, Utah, and Washington.

[16] These correlations are a matter for empirical analysis. When the correlation is found to be high it may be concluded that there is a close relationship among area yields and crop conditions faced by the farmer. A low correlation does not prove that this relationship does not exist, however, because a lack of correlation might be caused by differences in a farmer's methods or practices.

[17] This is a greater reduction than is possible under similar circumstances with the use of the 75 percent yield coverage under the all-risk type of crop insurance. This result was obtained using the assumption that premiums would be paid only in the years when area yield was above average. The yield data were taken from records of wheat farms in Montana, North Dakota, South Dakota, Kansas, and of cotton

could have been reduced to a greater degree. The extent to which similar results could be experienced would determine how effective area-yield insurance should be in providing the equivalent of yield stability for a farmer. The studies which have been made indicate that this range of effectiveness may be significantly greater than has been possible with all-risk crop insurance.

General analysis. In performing an actuarial test of area-yield insurance the first assumptions are: (1) that the secular trend value for yields on each farm is zero; and (2) that the average deviation of yields from the mean is the same for all farms. If these assumptions are realized, and if the necessary condition stated above is fulfilled, area-yield insurance would materially reduce or perhaps eliminate the income fluctuations of a farmer which are caused by yield variations. Net premiums paid by a farmer would equal indemnities received over a long period of time.

If the yield level changes on individual farms, any farmer would find that the change in his own yield level would have no effect on his own premium-indemnity schedule, except as his own yield affects the area average. The insurer may be indifferent therefore about the yield trend on any individual farm because all farmers in the area would participate in a common premium-indemnity schedule. This means that a farmer with increasing yields would not be penalized by the use of insurance and that a farmer with declining yields would not receive windfall gains through the use of insurance. A farmer would be able to reap the full gain from any improved farming practice which resulted in higher yields and a farmer who received low yields because of his own malpractice would not be subsidized.[18]

The weighted average yield experienced in an area each year

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farms in Texas. Yields of tobacco farms in Virginia did not show as high a yield correlation. Lloyd Barber of the BAE, John Fulmer of the University of Virginia, and J. A. Hodges of Kansas State College helped to provide some of these data. These cases should be regarded as illustrations of what may be done rather than proof of the extent of area yield insurance applicability. Further refinement in area delineation should make possible closer correlations between farm and area yields and this should increase the effectiveness of area-yield insurance in providing the equivalent of yield stability.

[18] It is extremely unlikely that farmers would ever resort to "collusive action" in an area to deliberately lower the area yield and thus obtain an indemnity (1) because to do so would lower the normal area yield and thus provide no long term gain and (2) because the leaders in the action would be the losers. Farmers who did not "go along" would obtain an equal indemnity as well as their regular crop. There would have to be 100 percent "collusion" for the leaders of such action to break even.

would be used in determining the eligibility for indemnity of all insured farmers. The statistical problem is twofold: (1) to establish the weights to use in an area in deriving the area average; and (2) to measure the yields in the various parts of the area each year in order to determine the area average for the year. Each year yields would be measured on a group of typical or "base" farms in each part of the area. These data would be combined to provide the weighted area average. If these farms were "well" selected, perhaps as few as 15 or 20 farms could be used to provide the necessary data and the results might be made to apply to 1,000 farms or more, depending on the size of the area and on the character of the agriculture in the region.

The normal area-yield would be an average of the weighted area yields experienced over a period of years modified to reflect the effect of changing costs and prices and changing farm technology. The normal yield would be the expected yield under normal weather conditions; and the normal yield would be changed from time to time so that insured yield and premium rates would reflect the changes in the level of yield probabilities. If this is done the insurer may be indifferent about the trend of yields in the area or among farmers in the area.

The statistical problem involved is that of developing the average of the weighted area yields and of developing the necessary "production functions," related to prices, costs, and technology, which would be used in modifying the base average to obtain the normal yield for the area.[19] In order to prevent intermittent participation which might develop into an adverse selectivity it would be necessary to take account of cost and price expectations of farmers. Otherwise farmers might estimate area yields a year or two in advance with greater accuracy than would be inherent in a

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[19] The establishment of the premium-indemnity schedule may require successive approximations. Ten years for instance may be too short a period for the establishment of a base area yield. Cf. V. P. Timoshenko, "Variability in Wheat Yields and Outputs," *Wheat Studies of the Food Research Institute*, XIX (1943), 196. It should be recognized that changes in insured yields and in premium rates should also be based on factors such as changes in farming practices, in seed, and in use of fertilizer. The same method could not be applied in all-risk crop insurance (1) because an agency not directly associated with the management of an individual farm is not in position to determine yield probabilities on individual fields with the same degree of accuracy as the farmer and (2) because changing farming practices may make all computations of past performance meaningless. An individual farmer might change his mind about applying fertilizer thus changing the yield probability for the farm or field.

formula used by the insurer; and they might buy insurance heavily when yields are expected to be lower than the formula indicates and drop out of the program when they expect the area yield to go above that indicated by the formula.[20] If their expectations are correct and if the terms of the contract allow them to act in this way it is possible that an adverse selectivity might result.

Various devices might be used to overcome the possibilities of such an adverse selectivity. The freedom of individual farmers with respect to insurance might be restricted by charging an initial entry fee and a re-entry fee adjusted to prevent intermittent participation. Under some circumstances these fees might be refundable. A long-term contract—a three-, four-, or five-year contract for instance—with early deadlines for application and cancellation might be the only kind offered. Such action would be of an economically coercive nature, however, and perhaps could be justified only if the formula could not be refined to reflect the factors on which yield expectations for two or three years ahead are based. Thus the formula should be modified by known factors such as prices, costs, technological and ecological data which have influenced yields and which are expected to change the level of yields in the period of the insurance contract. The formula should be flexible enough to allow the insurer to reduce the normal yields when lower area yields are expected and to take the opposite course when higher yields are expected.[21]

If the second assumption listed—that the average deviation of yields from the mean is the same for all farms in an area—is

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[20] If chief reliance is placed on a formula involving the projection of a trend it could be implied that the elasticity of expectations for yields is near unity. Actually it may be greater or less than unity and farmers may be aware of that fact. Hicks used the term "elasticity of expectations" as "The ratio of the proportional rise in expected prices (of a commodity) to the proportional rise in its current price." See J. R. Hicks, *Value and Capital* (Oxford University Press, 1939), p. 205. The term is used here in a similar sense, meaning that if a rise, or fall, in yields is expected to continue at the same rate the elasticity of expectations is unity. Cf. footnotes 14 and 21.

[21] For an appraisal of how farmers may form their expectations in regard to yields see T. W. Schultz and O. H. Brownlee, "Two Trials to Determine Expectation Models Applicable to Agriculture," *Quarterly Journal of Economics*, LV (1942), 487–96. The insurer would be faced with the necessity of determining the production effects of changes in prices, costs, technological and ecological factors. Some margin of error could be allowed the insurer but in general the insurer would have to hold expectations for the area which are as precise as those held by farmers, if an adverse selectivity through time is to be avoided. Anything which adds to the degree of certainty in prices, such as a forward price program, would be an aid to the insurer in developing the normal yield.

replaced with the assumption that average deviations are not the same, it may be found that the farmers with relatively low yields will have a lower yield variation in bushels or pounds per acre than the farmers with relatively high yields. If this is the case, the farmers with high yields should insure for an acreage in excess of their seeded acreage in order to be completely protected, whereas farmers with relatively low yields could insure for less than their seeded acreage and still be completely protected. If it is found that the percentage variation in yields is more uniform than is the variation in terms of bushels or pounds per acre, then a reasonably equitable limit to put on the farmer's insurable acreage could be determined by setting an upper limit on the total acreage to be insured in an area and by allocating this acreage to farmers on the basis of relative production, yield times acreage, of the individual farms in the area. Such a method would allow the farmers in an area to be covered by insurance to the extent of relative output and it would prevent the insurer from offering insurance on a farm in excess of the farmer's normal insurable interest. In areas where average deviations of yields of individual farms do not differ to any marked degree, justice could be obtained by setting the limit on insurable acreage within about 90 percent to 110 percent of average seeded acreage on the farm.[22]

Adaptation to several crops. A program of area-yield insurance could be applied to nearly all crops in an area by allowing a farmer to include several crops in his insurance program. For instance, a farmer could purchase 400 acres worth of insurance. This might cover his entire cropped acreage including a variety of crops. If wheat is the predominate crop in an area, the insurer may develop a schedule of premiums and indemnities based on records of wheat yields. An individual farmer who plants 100 acres of wheat, 50 acres of oats, 50 acres of barley, 50 acres of corn, 50 acres of sugar beets, and who has 50 acres of pasture and 50 acres of miscellaneous crops might insure his entire 400 acres by paying the premium required to insure a certain level of wheat yields in

[22] The problem is (1) to prevent a farmer from insuring in excess of insurable interest, but (2) to allow a farmer to insure to almost the full extent of his insurable interest. In such an area a farmer with yields which are 110 percent of the area average might be allowed to insure up to 110 percent of his (base) seeded acreage, whereas a farmer whose yields were 90 percent of the area average might be allowed to insure for only 90 percent of his (base) seeded acreage. A special acreage allowance might be permitted for a high-risk farm in a low-risk area.

the area. His indemnity would depend on wheat yields in the area. His problem may be stated as follows: Will the general crop conditions which result in low yields for crops other than wheat also cause wheat yields to be low in the area? The general answer would be in the affirmative but the correlation may or may not be high. Among the small grains, for instance, a high correlation may be expected, but between wheat and corn, wheat and sugar beets, or wheat and pasture, the correlation probably would be lower. The value of this device would depend on the correlation existing between the area-yields of the crop used as a base and the yields of all crops which the farmer attempts to insure.

This example suggests two possibilities: (1) area-yield insurance might be based independently on two or more crops in an area; and (2) premiums and indemnities in an area might be based on a weighted average of the most important crops in the area.

Area yield insurance might be sold on the basis of the yields received for two or more crops in an area. In an area where acreage is divided among orchards, truck crops, dairying, and small grains, for example, the yield correlation among the crops might be so low that if insurance is based on wheat or grains alone, the indemnities received would not correspond with poor crops of fruit, vegetables, or feed.[23] In cases such as this an index of fruit yields might be calculated and area-yield insurance could be offered to fruit growers using the normal fruit yield as a base.[24] Likewise some index of yield might be developed for truck crops and area-yield insurance might be sold to truck farmers on the basis of this index. Area-yield insurance on the grains and feed crops grown could be offered on a similar basis. Insurance could be sold on each of several crops and a farmer could choose among them in any combination desired. The principle also could be extended to an index of yields for all of the major crops in an area and the weighted average yield

[23] It might be argued that when this condition is characteristic there is little need for crop insurance because (1) farmers' incomes would not be erratic because of yield variations, and (2) crop insurance would not improve resource utilization on the part of the firm. This argument would not hold in most cases, however, where the correlation is low but still significant.

[24] When yields are normal the index would stand at 100. When they are 90 percent of normal, the index would be 90. A farmer buying insurance could insure for yields of 50, 70, or 80 percent of normal, for instance. A range of premiums might be offered for insuring anywhere from 40 to 100 percent of normal. For discussion of a special problem which may be encountered in case of fruit, see Ralph R. Botts, "Development of 'Normal' Citrus Fruit Yields by Tree Ages for Use in a Yield Insurance Plan," this *Journal*, XXIII (1941), 867–72. The index for some crops such as tobacco might be on a yield-quality basis. See Wrather, *loc. cit.*

for any year could be expressed as a percentage of normal yield.[25] A farmer could insure for some percentage of normal yield and the insurer would calculate premiums and indemnities on the basis of yield experience in the area. A farmer would receive an indemnity whenever the index of yields is below the level for which he is insured.

Special problems. There are several specific risks such as hail or insect infestations which may affect an area at random. If the complete area were affected uniformly, the area-yield would be reduced and a farmer would be compensated accordingly for his crop loss attributable to the phenomenon. If only a portion of an area were affected or if the damage were not uniform over the area, a special problem exists. In this case, using hail as an example, the damage could be estimated and a specific indemnity would be paid for the particular loss.[26] The case for insect infestations and crop diseases appears more obscure because damaged areas may not be as clearly defined as is hail damage and insects or disease usually affect some crops more severely than others. Perhaps no special treatment can be developed at this stage for losses caused by insects or crop diseases.[27] The case for flooding is a special one which may best be handled by drawing area boundaries so that strips of land such as a slough or "bottomland," area which are most likely to flood would constitute an individual area.

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[25] For discussion of the general problem of constructing a crop yield index for an area see E. J. Working, "Crop Yield Index Numbers," this *Journal*, XXII (1940), 701–13 and H. G. Hirsch, "Crop Yield Index Numbers," this *Journal*, XXV (1943), 583–98.

[26] The actuarial cost of the specific indemnity would be included in the original premium. In the case of hail, special adjusters would have to be employed to survey the damage over an area to determine whether any parts of an area should receive a special indemnity. If it was decided that they should, the case might be handled somewhat as follows: The regular area-yield indemnity, if any, could be calculated on the basis of the estimate of area-yield which would have existed in the absence of the hail storm and the indemnity for hail would be based on percent damage to the crop existing at the time of the storm.

The total indemnity may be calculated as follows:

Let

I = total indemnity,
Y_i = insured yield,
I_a = indemnity due from area-yield insurance, and
h = percent hail damage.

Then $Y_i - I_a$ = balance of crop left after area-yield indemnity is calculated and

$$I = I_a + h\,(Y_i - I_a)$$

[27] This should be recognized as a case which may be settled according to the kind and extent of infestation or disease and which might be handled in a reasonably equitable manner through the use of special riders covering the specific risk involved to the extent that the risk is not covered by the regular area coverage.

General conclusion. The factors that appeared to work against the success of all-risk crop insurance will not lead to adverse selectivity within an area under area-yield insurance and will not endanger the success of the area-yield insurance program. Actuarial procedures can be adapted to prevent adverse selectivity and to enable the insurer to be indifferent, in an actuarial sense, to the facts (1) that yields trend upward on some farms and downward on others, (2) that yield deviations are not the same on all farms in an area, (3) that all farmers may not purchase insurance, and (4) that farmers may insure only part of their seeded acreage.

As long as the normal yield for an area can be determined accurately a system of yield probabilities may be developed for the area. The area yield probabilities may be used as the actuarial data and farmers can be protected against the occurrence of adverse crop conditions if areas are delineated so that there is a high positive correlation between crop conditions faced by the farmer and area yields. Where area yields are not an accurate indicator of these conditions, one of the other types of insurance may be more useful.

Parts of the United States where area-yield insurance should be most useful would appear to be regions such as the corn belt, the dry-farm and irrigated areas of the Great Plains, the Palouse Country of Washington, and other regions in which yields may vary uniformly in an area. It probably would not apply well to ranching areas or to cases in which crop yield variations are not uniform or consistent within an area.

Weather-Crop Insurance

Basic conditions. The basic assumptions for weather-crop insurance are: (1) that certain meteorological phenomena which depress crop yields can be defined and are measureable; and (2) that a schedule can be developed for a locality which will show the premium required to insure against an occurrence of these phenomena and the indemnity which will be associated with specific occurrences. The general formula for premiums and indemnities in any locality would be constructed on the basis of an analysis of the relationship existing between certain weather phenomena and yields. Some of the weather phenomena which are known to be important in the determination of crop yields, such as rainfall and temperature, would be selected on the basis

of prior knowledge. Regression equations, based on simple or multiple correlations of yields and weather data, would be used to indicate the normal relationships and to indicate how yields might be expected to vary with variations in the phenomena selected. Insurance might be sold on the basis of calculated yield in an area, i.e. an indemnity would be paid whenever area calculated yield in any year was less than should occur with normal weather and the size of the indemnity would vary with the difference between the calculated yield and the "normal" yield.

Since the payment of indemnity to a farmer would be based on meteorological phenomena rather than on the yields of the individual farmer or of the area, the insurer would not be concerned in an actuarial sense about trends of yields, about which crops are insured, or about the consistency with which individual farmers insure. What is of significance in the analysis is the relationship existing between yields and the weather phenomena upon which indemnities are based. The value of the insurance for the farmer will depend on whether he will receive an indemnity when his yields are low because of adverse weather. Where a significantly high correlation between certain weather phenomena and yields is found, weather-crop insurance could be useful to farmers wishing to be protected against such adverse crop conditions.

The existence of high and significant correlations between crop yields and rainfall, soil moisture, and temperature has been established for several regions, particularly for the Great Plains region of the United States. Factors which might be included in a weather-crop insurance formula, therefore, are soil moisture at seeding time or preseasonal precipitation, seasonal precipitation, and growing season temperature or evaporation. The formula for calculating yields might include these three factors as variables or it might be merely a simple first degree regression equation using annual precipitation as the variable factor.[28]

[28] For studies of weather-yield correlations see R. D. Bridgford and H. K. Hayes, "Correlation of Factors Affecting Yield of Hard Red Spring Wheat," *Journal of American Society of Agronomy*, XXIII (1931), 106–17; John S. Cole, *Correlations Between Annual Precipitation and the Yield of Spring Wheat in the Great Plains;* USDA Technical Bulletin 636, 1938; John S. Cole and O. R. Mathews, *Relation of the Depth to Which the Soil is Wet at Seeding Time to Yield of Spring Wheat on the Great Plains;* USDA Circular No. 563, 1940; G. W. Craddock and C. L. Forsling, *The Influence of Climate and Grazing on Spring-Fall Sheep Range in Southern Idaho,* USDA Technical Bulletin 600, 1938; Floyd E. Davis and J. E. Pallesen, "Effect of the Amount and Distribution of Rainfall and Evaporation During the Growing Season on Yields of Corn and Spring Wheat," *Journal of Agricultural Research*, LX

Test Cases. In several test cases on wheat grown in the Great Plains, use of a regression equation containing annual precipitation as the variable factor for estimating wheat yields would have made it possible for a farmer to make a greater reduction in the fluctuations in his annual net income through the use of weather-crop insurance than would have been possible through the use of all-risk crop insurance covering 75 percent of the base yield.[29] In one case which appears to be fairly typical a farmer using weather crop insurance would have failed to cover computed cash operating costs in only two of 28 years. If he had not used insurance he would have failed to cover computed cash operating costs in 15 out of the 28 years.[30] Further empirical investigation is needed to determine how typical such cases may be and to determine the extent of effectiveness for weather-crop insurance.

General conclusion. Weather-crop insurance would be adapted most easily to an area in which one or two weather factors, such as precipitation and temperature, are generally limiting and are

(1940), 1–23; A. L. Hallsted and E. H. Coles, "A Preliminary Report on the Relation Between Yield of Winter Wheat and Moisture in the Soil at Seeding Time," *ibid.*, XLI (1930), 469–73; A. L. Hallsted and O. R. Mathews, *Soil Moisture and Winter Wheat with Suggestions for Abandonment*, Kansas Agricultural Experiment Station Bulletin No. 273, 1936; J. W. Hopkins, "Weather and Wheat Yield in Western Canada, I. Influence of Rainfall and Temperature During the Growing Season on Plot Yields," *Canadian Journal of Research*, XII (1935), 306–34; Enoch W. Nelson, *The Influence of Precipitation and Grazing Upon Black Gramma Grass Range*, USDA Technical Bulletin 409, 1934; Ray F. Pengra, "Correlation Analysis of Precipitation and Crop Yield Data for the Sub-humid Areas of the Northern Great Plains," *Journal of the American Society of Agronomy*, XXXVIII (1946), 848–50; George A. Rogler and Howard J. Haas, "Range Production as Related to Soil Moisture and Precipitation on the Northern Great Plains," *ibid.*, XXXIX (1947), 378–89; V. P. Timoshenko, "Variability in Wheat Yields and Outputs," *Wheat Studies of the Food Research Institute*, XVIII (1942), 291–338 and *ibid.* XIX (1943), 151–202; L. R. Waldron "Yield and Protein Content of Hard Red Spring Wheat Under Conditions of High Temperature and Low Moisture," *Journal of Agricultural Research*, XLII (1933), 129–47; P. Patton, *The Relationship of Weather to Crops in the Plains Region of Montana*, Montana Agricultural Experiment Station Bulletin 206, 1927; H. L. Walster and P. A. Nystuen, *North Dakota Wheat Yields*, North Dakota Agricultural Experiment Station Bulletin 350, 1948. For weather and yield data, based on state averages, see Louis H. Bean, *Crop Yields and Weather*, USDA Miscellaneous Publication No. 471, 1942.

[29] This result was obtained using the assumption that premiums would be paid only in the years when estimated yield was above normal. Data are from John S. Cole, *op. cit.* They represent rainfall and experiment station yields for 14 stations in the Great Plains covering 272 crop years. This type of insurance could be made more effective in stabilizing income if the estimating equation is expanded to differentiate between preseasonal and seasonal precipitation and to include temperature or evaporation coefficients.

[30] Computed cash operating costs included cash outlays for all usual operations plus insurance premiums, normal depreciation allowances on machinery, and $1,500 as the minimum family living allowance.

highly significant in the determination of crop yields. Semi-arid regions generally fit this description. In humid temperate areas the correlation between yields and weather factors may be less clearly defined and it may be relatively difficult to develop a reliable estimating equation for such areas. The magnitude of the coefficient of variability in yields may be less in these latter areas than in the semi-arid regions and the inaccuracies in the estimating equations would cause the errors in indemnity payments to be greater, compared with the premium level, than if the coefficient of variability of yields is large. In addition, weather-crop insurance may be of little value in case of crops where yields are strongly affected by risks such as insect infestations and certain crop diseases which may follow a year or two after a particular type of weather has been experienced.

Weather-crop insurance may be best adapted to grazing areas such as are found in semi-arid regions of the United States and under some conditions it may be useful in dry-farming areas.[31] In such situations it may have important advantages in comparison with the other types of crop insurance. Since the actuarial basis of weather-crop insurance is weather data, actuarial tables would be unaffected by changing economic, technical or technological factors which may influence the general trend of yields. This is an advantage actuarially speaking, compared with area-yield insurance and all-risk crop insurance, because premiums would not have to be recomputed or revised when price changes or technological developments alter general yield prospects. Revisions would be made only when it became evident that the measurements of the weather phenomena had been inaccurate or unrepresentative.[32] Thus once established, so that premiums and indemnities are actuarially correct, modifications in rates would be minor and infrequent.

Effects of the Actuarial Base on Resource Utilization

The use of crop insurance may have various effects on the

[31] The term "dry-land farming" is used to typify a system of farming used in semi-arid regions of the United States where special moisture conservation practices are followed such as alternate cropping and fallowing, strip cropping, stubble mulching, and listing.

[32] Ordinarily the premium-indemnity schedule would not be changed during short weather cycles, such as three- or four-year cycles, but changes would be made on basis of data covering longer periods of time. Cf. Timoshenko, *op. cit.*, XIX (1943), 294–97.

pattern and efficiency of resource utilization depending on the type of insurance used and on the relationship between yield expectations held by the farmer and his insured yield. It may be assumed, as a first approximation, that use of insurance would provide a basis for a farmer to measure the cost of the uncertainty inherent in the weather by presenting him with a specific premium-indemnity schedule. To the extent that it does this it should permit him to achieve a position of optimum resource utilization in a more consistent manner than he could achieve without insurance.[33] This first approximation must be modified, however, according to the assumptions that are made in respect to the three types of insurance.

All-risk crop insurance. The effect of all-risk crop insurance on resource utilization may depend on the relationship of a farmer's insured yield to his yield expectations in a given cost situation. Three distinct types of situations may be postulated as follows: (1) a situation in which yield expectations are normal with respect to the base yield; (2) a situation in which yield expectations are relatively poor, assumed to be about the level of insured yields; and (3) a situation in which yield expectations are very good, about 10 to 15 percent above the average yield of the base period. In each situation it is assumed that the farmer has some specific knowledge about the condition of his farm on which to base his expectations.

If yield expectations are about normal with respect to the base period, with crop insurance the farmer should be able to come closer to the point for optimum resource utilization than he could without insurance because the cost of uncertainty inherent in the weather will be defined and will be given an average value through payment of the premium. A fixed cost, the premium, will be substituted for an uncertain cost, the cost of yield variability.

If yield expectations are relatively poor, approximately at the level of the insured yield, for example, a pronounced change may take place in the plans for the firm. In this case the farmer may

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[33] If certain unpaid costs which may arise through erosion, free public service, or family exploitation are neglected, and if the existing pattern of resource control or ownership is accepted as given, an optimum utilization of resources may be defined as a condition that exists when any small change in the production pattern leads to a combination of decrements and increments in output such that there is no system of exchanges whereby the increments will be accepted voluntarily as a compensation for the decrements.

restrict inputs to the level which is necessary to qualify for crop insurance.[34] By doing so he may eliminate any possibility of loss and in case weather conditions are more favorable than is normal a net return may be realized. The farmer would cover his costs if the yield is as expected. He would have a net gain equal to the harvesting expense if there is a complete crop failure and he would have a net return for management if weather conditions are more favorable than is normal. A farmer might prefer, therefore, that the crop would be a complete failure or that weather conditions would be unusually good.[35] In general the closer the expected yield approaches insured yield (from above), the greater would be the tendency to reduce inputs to the level necessary to qualify for crop insurance; and when expected yield is less than insured yield this tendency would be at a maximum.[36] If contracts are written containing the provisions which have been described—that the discounted value of the maximum insurance indemnity is equal to or greater than the cost of the qualifying inputs—crop prospects could not become bad enough to discourage seeding.

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[34] The condition attached to the analysis is that the farmer must employ some minimum inputs in order to qualify for insurance. It is assumed that the cost of these inputs, plus cost of harvesting a relatively poor crop, plus the insurance premium, are equal to the maximum insurance indemnity.

[35] In some earlier years of the Federal crop insurance program a delay in the completion of contracts allowed some farmers to continue to plant and insure when crop failure was almost certain. See Clendenin, *op. cit.*, p. 250.

[36] This may help to explain why Congress, in an attempt to avoid losses which would be inherent in over-insuring, recently found it expedient to apply new restrictions on insured levels. The 1947 amendment to the Federal Crop Insurance Act read in part " . . . if 75 per centum of the average yield (on the insured farm) represents generally more protection than the investment in the crop in any area, taking into consideration recognized farming practices, the Board shall reduce such maximum percentage so as more nearly to reflect the investment in the crop in such area . . . ." See 80th Congress, 1st Session, *Public Law 320* (S. 1326), p. 1, Sec. 508(a). The same provision was included in the crop insurance bill introduced in the Senate in 1949. Cf. 81st Congress, 1st Session, S. 898. For a discussion of the reasons for this amendment see 80th Congress, 1st Session, *Department of Agriculture Appropriation Bill for 1948, Hearings before the Subcommittee of the Committee on Appropriations, House of Representatives* (April 19, 1947), pp. 1696–1700. Insurance may be written to cover an average investment in the crop rather than a certain percentage of average yield. This type of insurance has been used on an experimental basis for corn and tobacco. See *Report of the Manager of the Federal Crop Insurance Corporation*, 1947, pp. 25, 30. This type of insurance has been sold on a lower coverage basis than the yield type because prices constitute an additional hazard. In 1947 the FCIC was limiting coverage on tobacco to 75 per cent of the average investment, or to about two-thirds of the coverage which could be secured through the yield type. By 1947 about 15 percent of the insured tobacco producers had selected the investment type of insurance. In the case of corn the coverage was equal to about one-half to two-thirds of the coverage provided by yield insurance on basis of 75 percent coverage of average yield.

If yield expectations are very good, 10 to 15 percent above average yields, crop insurance might not be used because of the reduced probability of receiving an indemnity. If crop insurance is used in such a setting, the pattern of resource utilization would be the same as when insurance is not used. With yield expectations normal or above, no distortion in resource utilization should occur.

Area-yield insurance. The effects of area-yield insurance on resource utilization would depend on the provisions of the contract as well as on the situation existing in respect to yield expectations. With yield expectations normal or above on the individual farm it can be demonstrated that inputs would be closer to the point of optimum resource utilization than they would be if insurance is not available. This is due to the fact that the reduction in yield uncertainty should minimize some of the limiting effects of capital rationing and should eliminate the necessity for attempts which may be made without insurance to minimize loss probabilities. With yield expectations relatively low, but not so low as to discourage seeding individual fields, a similar result may be expected. If yield expectations are so poor on the individual field that seeding does not appear to be profitable, the situation resulting would depend on the provisions of the insurance contract. If the insurance contract provides that the farmer must seed a certain acreage in order to qualify for crop insurance, this provision might force a farmer to seed some fields which he otherwise might handle in a different manner. If no such provision is in the contract, resource utilization would be determined by the crop prospect. If an objective of efficient resource utilization is held, therefore, no minimum seeded acreage on a particular farm, or perhaps only a rather small minimum acreage on a farm should be established as a condition for participation in insurance.[37]

Weather-crop insurance. The effect of weather-crop insurance on resource utilization should be in the direction of an optimum resource utilization. The reason for this is that a farmer should find it most profitable to act in accordance with the yield probabilities existing at any particular time and yet he could arrange the capital

[37] The insurance carrier might be required to state that some minimum acreage should be seeded in an area as a condition for insurance participation in order to establish a base for indemnity payments. An alternative method for handling conditions which are so adverse that no crop is seeded would be to shift the base for indemnities from area-yield to weather, providing the actuarial data are available and comparable.

structure of the firm with greater certainty in regard to the income prospect because the income fluctuations caused by yield variations should be reduced or eliminated. At the same time the cost of the climatic hazard would be measured in terms of a specific premium schedule.

General Conclusions

Areas of Adaptation. The advantages and disadvantages of the three types of crop insurance are relative to the empirical situations confronted. In some low risk regions where the probability of indemnity does not change from year to year and in case of some crops where the current yield is not influenced greatly by a farmer's immediate action, all-risk crop insurance may be used without adverse selectivity or without adverse effects on the efficiency of resource utilization. The same type of insurance may be found less well adapted in other regions or among crops where the necessary conditions are not fulfilled. It may be inadequate and actuarially unworkable in a high risk region like the Great Plains. In such a region area-yield insurance and weather-crop insurance, according to the theory developed, should prove more satisfactory (1) because of the possibilities of providing a higher base for insured yields, (2) because the insurance programs can be made equitable in an actuarial sense and an adverse selectivity can be avoided, and (3) because both types should have a positive, rather than a negative, effect on the efficiency of resource utilization.

Suggested program. If these conclusions are correct the program for crop insurance in the United States should develop somewhat as follows: (1) Since all-risk crop insurance may be appropriate chiefly in low risk regions, or in regions where the first assumptions mentioned above are fulfilled, its use should be confined to such regions or situations. Empirical studies should be continued to determine the premium-indemnity schedules and the provisions which would be most appropriate for such regions or crops. (2) Since area-yield insurance may be most appropriate for the high risk crop regions such as the Great Plains, parts of the corn belt, the western cotton area, etc., empirical studies should be undertaken as a basis for instituting the program. These would involve the delineation of areas and the calculation of premium-indemnity schedules for each area.[38] (3) Since weather-yield insurance may be the only type

[38] Since 1947 an amendment to the Federal Crop Insurance Act has provided that the FCIC might insure or reinsure " . . . producers of agricultural commodities

appropriate for large areas of the western United States, especially the ranching areas, investigations should be continued as a basis for determining the specific relationship between weather phenomena, particularly precipitation, and range or forage yields. The weather phenomena then could be used as a basis for writing insurance on range or forage production.

In viewing the record of crop insurance in the United States most writers have counseled caution and have indicated that it may take years to develop a reasonably satisfactory program. For instance, the wheat crop insurance consulting committee appointed by the Board of Directors of the FCIC concluded in a report submitted in 1942 " . . . that the opportunity be afforded to accumulate the fullest data possible before the crop insurance program is . . . extended."[39] Clendenin stated in 1942 that the goal of crop insurance is "eminently desirable, does not seem improbable of attainment, and justifies experiment with the single crop [wheat, *i.e.*, be restricted to wheat] until the attempt is either successful or proved definitely unlikely to succeed."[40] In 1947, the record of crop insurance was reviewed in detail in Congress, both on the floor of the House and Senate[41] and before the House and Senate committees on agriculture.[42] The House Agricultural Committee, in its report to accompany an amendment to the crop insurance act stated " . . . the committee believes it should be recognized that the development of a sound crop-insurance program covering even the major agricultural commodities on a nation-wide basis is a long-

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under any plan or plans of insurance determined by the Board to be adapted to any such commodity . . . for the purpose of determining the most practical plan, terms, and conditions of insurance . . . ." But the regular programs have been administered under the restrictions (1) that " . . . any insurance offered against loss in yield shall not cover in excess of 75 per centum of the recorded or appraised average yield of the commodity on the insured farm . . . " and (2) that insurance shall not exceed the investment in the crop. See 80th Congress, 1st Session, *Public Law 320, loc. cit.* and 81st Congress, 1st Session, S. 898. These latter provisions in the law would have to be amended to permit the development of area-yield insurance or weather-crop insurance on a commercial basis.

[39] Herman L. Ekern, Robert J. Laubengayer, and William G. Cochran, *Summary of Report of the Wheat Crop Consulting Committee on the Operations of the Federal Crop Insurance Corporation* (1942), p. 42.

[40] J. C. Clendenin, *op. cit.*, p. 274.

[41] See 80th Congress, 1st Session, *Congressional Record*, XCIII (March 31, July 3, July 9, July 25, and July 26, 1947), 3012–3015, 8440–8441, 8698–8699, 10296–10302, 10580–10581.

[42] See 80th Congress, First Session, *Crop Insurance, Hearings before the Committee on Agriculture, House of Representatives* (March 20 and 21, 1947) and *Federal Crop Insurance, Hearings before the Committee on Agriculture and Forestry, United States Senate on S. 1326* (June 30, 1947).

time project that may well take years in its accomplishment. . . . The committee is convinced . . . that the best interests of farmers themselves will be most truly served if the Public Treasury is protected against excessive loss, by curtailment of the insurance program during its development period to the smallest scale consistent with effective experimentation, and expanding it later only when experience has indicated that a sound insurance plan has been worked out. . . . "[43]

While the above statements are well founded in terms of general experience, the conclusion seems inescapable that the chief reason for failures is that programs have been based on a faulty conception of the actuarial problems involved. If the most appropriate structure for actuarial purposes is used, crop insurance programs might be developed on a nation-wide scale more rapidly than has been usually indicated. This would involve (1) placing greater emphasis on determining the most suitable actuarial base for the particular region and crop, (2) marshalling the data necessary for use with this base, and (3) developing the administrative organizations and techniques which may be most appropriate.

[43] See *Report of the Manager of the Federal Crop Insurance Corporation*, 1947, p. 4.

THE FIELD OF AGRICULTURAL MARKETING RESEARCH: OBJECTIVES, DEFINITION, CONTENT, CRITERIA

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THE OBJECTIVES, definition, content, and criteria for the field of agricultural marketing are all related. Let us see if we can set them down, separately, but in proper relation to one another.

Objectives of Agricultural Marketing Research

What is the over-all objective of research in agricultural marketing?

Some believe that the over-all objective is to increase the consumption of farm products.[1] Many believe that the objective is to maximize farmers' net returns.[2] Title II of the Research and Marketing Act of 1946 declares that "a sound, efficient, and privately operated system for distributing and marketing agricultural products is essential to a prosperous agriculture and is indispensable to the maintenance of full employment and to the welfare, prosperity, and health of the Nation." This apparently is the legislators' objective in providing for marketing research. Economists are likely to hold the view that the objective of marketing research is merely a part of the general economic objective of allocating scarce resources so as to maximize the output of goods and services.[3] Others may have still other goals.

Let us consider these different over-all objectives in turn.

Increasing the consumption of farm products is an acceptable objective, from a national point of view, only if nutritional and clothing needs are not already being met. If nutritional and clothing needs are being met, it is difficult to see, from a national point of view, why there is any more intrinsic merit in increasing the consumption of farm products than in increasing the consumption of other products.

To take a concrete case: Nutritional studies show that all income

[1] This objective, for example, was written into the basic project statement of the North Central Regional committee on dairy marketing research in 1947.

[2] "Report of the New York Milkshed Price Committee," Feb. 1949, p. 5.

[3] This objective is stressed by R. G. Bressler in his article, "Agricultural Marketing Research" this *Journal*, XXXI, No. 1, Part 2, Feb. 1949, pp. 553–562.

groups consume substantially less milk than they need for adequate nutrition.[4] Research directed toward expanding the consumption of milk therefore would benefit the nation as a whole. Nutritional studies also show that all income groups consume substantially *more* butter and other fats than they need, nutritionally. Research directed toward expanding the consumption of butter and other fats could not well be justified on the same grounds as for milk.

Maximizing farmers' net returns. This objective is implicit if not explicit in much agricultural marketing research.

So far as farmers' net returns can be maximized by reducing marketing costs, the nation would benefit as well as the farmers concerned. But net returns also can be maximized by monopolistic action to raise prices. Such monopolistic action would be inimical to national welfare, and farmers object to it when it is practiced by other groups. It can hardly be included uncritically as a legitimate objective for agricultural marketing research.

A similar objective is sometimes expressed in different words—*to increase farm incomes.* Before that objective could be accepted, the case would have to be made that farmers' incomes needed increasing more than other peoples' incomes.[5] This case is relatively easy to establish during depression, when farm incomes decline more than the incomes of most other groups. It is less easy to establish during booms, when farm incomes rise more than the incomes of most other groups.[6] In any case, the particular method of raising farm incomes by marketing research would have to be examined. The citrus growers over the past few decades have done a remarkably good job of marketing their product, and research may have been a big factor in getting the job done. Yet the prices of citrus fruits stand now at almost the lowest percentage of parity on the whole list of farm products—11 percent in March 1948, and even after the big freeze last Fall, only 31 percent in March 1949. Good marketing alone was not able to ensure high farm income.[7]

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[4] Willard W. Cochrane, *High-Level Food Consumption in the United States*, BAE, USDA, Misc. Pub. No. 581, December 1945, p. 10.

[5] The arguments on this point go on and on. For the most recent discussion, see Carl Kaysen and James H. Lorie, "A note on Professor Schultz's Analysis of the Long Run Agricultural Problem." *Review of Economics and Statistics* XXX: 286–295. Nov. 1948. Schultz, T. W. "A comment." this *Journal* XXX: 295–296. Nov. 1948. Carl Kaysen and James H. Lorie. "A rejoinder." this *Journal* XXX: 296–297. Nov. 1948.

[6] *1949 Agricultural Outlook Charts*, USDA, BAE, Washington, D. C., Oct. 1948, p. 7.

[7] This paragraph barely scratches the surface of the whole problem whether net

The suggestion has been made in some quarters that agricultural economists should seek to increase farm income in any case—because "the farmer's the fellow you're working for"—regardless of the national welfare.

This is clearly a misconception. An agricultural economist on the payroll of a farm commodity pressure group or general farm organization may have that limited objective, but his views would require examination to make sure they were not biased by his connections. The agricultural economist at a college or university is in a different situation. He is a scientist. He is not "working for the farmer" or any other special group. He is working for everybody, seeking for objective impartial truth, just as an atomic research man is not working for the aluminum interests or the uranium interests, but for society as a whole.

It seems clear that the over-all objective of research in agricultural marketing, at any scientific institution worthy of the name, must be in line with the objectives of all scientific institutions—the maximum satisfaction of consumers' demands—through the maintainence or development of pricing systems that accurately reflect those demands and allocate resources to their maximum satisfaction, and through the reduction of marketing costs.

Scope of the Field

The field of agricultural marketing can be defined either narrowly or broadly.

A narrow definition of the field is frequently used. It restricts the field of marketing to the job of getting the product from the harvest field to the consumer's table. This appears to be the definition adopted in the Research and Marketing Act of 1946, although no explicit definition as such is given in the Act.

This narrower definition is suited to the purposes of the Act, which are to direct research into a part of the field that previously has been neglected. But it does not provide adequate coverage of the field as a whole. Put in everyday language, the narrower definition reflects this view: "Here's the stuff. We've produced it; now you sell it as best you can. And see if you can't develop some new uses for it, to help us get rid of it."

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farm income per capita can be raised without the aid of additional measures to facilitate the movement of the half million a year of young farmers growing up in excess of the number needed in agriculture. I have attempted to deal with this problem in Chapters 29 and 30 of my *Agricultural Price Policy*.

The shortcomings of this view are evident. Many marketing problems arise because the right variety of crop was not planted in the first place. Many other marketing problems arise because the right quantity was not produced. To begin with the harvested crop on the ground is to begin too late, after much of the marketing problem is already past solution.

In order to deal with marketing problems adequately, therefore, we need to define the field broadly enough to encompass all the forces that create the problems. We need to include studies of consumer demand (its relation to income, its elasticity, changes, etc.) price policies, and so forth.[8]

Which End of the Field to Start With?

We also need to look at the field of agricultural marketing from the proper end.

That is to say, we should not start with what farmers have produced; we should start with what consumers want. We need to start with consumers' demands for food and clothing, and see how well producers can meet them. Production without regard to consumers' wants obviously is poor business for producers as well as for consumers and the nation as a whole. Adam Smith may be out of date on some things, but he was correct and still is correct in his observation that consumption is the aim and end of all production. Any producer who does not start with what the market wants and then try to produce it is asking to go broke.

If we were living in a purely competitive economic environment, consumers' demands would be a sufficient starting point. But our environment is not economic only; we live in a partly welfare state, as well as an economic one. We take into account consumers *needs*, as well as their *demands*. Some groups at some times do not earn enough to back up their demand for food and clothing with purchasing power (in the economic sense, of course, demand does

[8] I believe that this is substantially the same thing that L. J. Norton had in mind when he outlined as the first problem in marketing research, *The Market*. . . . "This term is used to mean the quantitative and price aspects of an economy's sales of a particular good." Norton then defined the first subdivision of this problem as "price-quantity relationships, income effects, distribution-of-income effects, general price level effect, competitive relationships, secular tendencies in relative demands, etc." (this *Journal*, XXXI : 1, May, 1949, pp. 350–351).

Norton's article was drawn to my attention by the Editor of this *Journal* after I sent my manuscript in to him. It appears to me that we have arrived independently at much the same conclusion, that the field of marketing needs to be defined broadly to include the study of consumer demand.

not exist unless it is backed up by purchasing power). When this happens, we do not let those people starve and freeze. In one way or another, we give them purchasing power to buy enough food and clothing to provide for their minimum needs. The determination of these needs is a job for nutritionists and others in the sciences involved; but figuring out how to provide for those needs, and estimating how much this provision will add to the total demand, surely is part of the field of agricultural marketing research.

Extent of the Field

We may agree that we should begin with consumer demand. But that is only a beginning.

Where we go from there, to define the field of marketing, can be shown best by a diagram such as Figure 1.

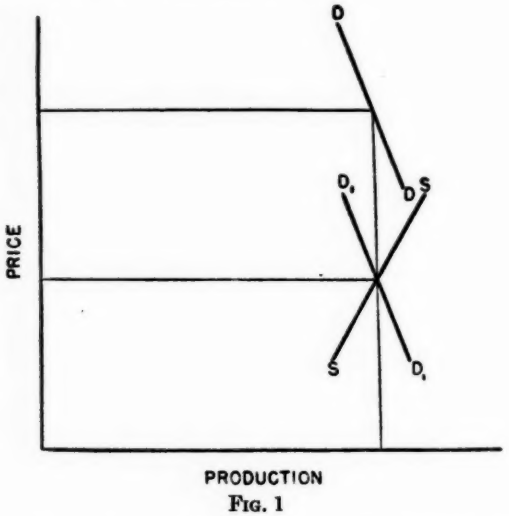

FIG. 1

The upper negatively sloping curve DD represents consumer demand for farm products at retail. It has an elasticity of -0.4, the figure estimated by Cochrane.[9] The lower sloping line D_1D_1 represents the demand curve for farm products at the farm. It lies below the upper curve DD by the amount of the marketing costs.

[9] Willard W. Cochrane, *Farm Price Gyrations—an Aggregative Hypothesis*, this *Journal*, XXIX, No. 2, May, 1947.

The long-run supply curve for farm products is represented by the positively sloping[10] line SS. It intersects the demand curve for farm products at the farm, D_1D_1. The vertical line above the point of intersection cuts the demand curve for farm products at retail.

In terms of this diagram, the field of marketing may be defined as everything above the line D_1D_1.

In similar terms, everything below the line SS is farm management or production.[11]

Content of the Field

As defined above, the field of agricultural marketing includes three major parts:

The first part deals with the position, elasticity, curvature, etc., of the demand curve for farm products at retail, the relation of the curve to consumer income, and so forth. It includes such questions as whether attempts should be made to shift the curve up or down, or to keep it from shifting up or down.

The second part of the field of agricultural marketing deals with prices. Consumers' demands are the guides to producers as they lay their production and marketing plans, and one of the best media for transmitting these demands to producers is the system of prices. The accuracy and clarity of prices as lenses refracting consumer demands therefore is an essential area of study in the field of agricultural marketing. Private and public agricultural price policy are both included here.

The field of agricultural marketing obviously also includes the area of costs and profits lying between the two sloping curves. The field is sketched above in terms of farm products as a group; it includes also the different products taken separately, and relations among the different products.

The three major parts of the field of agricultural marketing can thus be described in summary terms:

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[10] There is evidence that the short-run supply curve for farm products is practically vertical. The supply curves for individual farm products are more elastic. (Cochrane, *op. cit.*)

[11] A question may be raised: What about the area to the right of the intersection of D_1D_1 and SS, above D_1D_1 and below SS? Is it marketing, or production?

The answer is that really there is no such area. The demand and supply curves do not intersect, strictly speaking. They lie on different planes, the one representing the responses of consumers, and the other representing (with appropriate lags) the responses of producers.

1. Consumer demand for farm products—elasticity, and changes.
2. The prices that refract these demands more or less perfectly to producers.
3. The costs of marketing intervening between producers and consumers.

Specific Objectives

At the end of the first section of this paper, after the general objective of agricultural marketing research was set forth, the statement was made that the specific objectives could best be drawn up after the scope and content of the field was outlined. We are now in a position to draw up these specific objectives.

The belief is often expressed that the objective of agricultural marketing research is to reduce the costs of marketing. Farm management research, for example, can promote the maximum satisfaction of consumers' demands if its objective is to reduce the costs of production. Similarly, marketing research can promote the maximum satisfaction of consumers' demands if its objective is to reduce the costs of marketing.

Reducing the costs of marketing clearly is one major and essential objective in marketing research. But it is not the only one; it is in fact only the third of three related objectives under the general objective of maximum satisfaction of consumers' wants.

In the light of the three parts of the field shown above, the first objective clearly is to determine consumers' demands. The second objective then is to ensure that the marketing system accurately reflects those demands clear back to the producer, so that he can produce accordingly. Reducing the cost of getting those goods to the consumer then is the third of the three related objectives.

Let us examine these specific objectives a little more fully.

To determine consumer demands:

The study of consumer demands falls naturally into two parts, one dealing with the demand for existing products, and the other with the potential demand for new products.

The consumer demand for existing products is objectively represented in retail prices and quantities sold. The job in this case is to get the data, analyse them, and see what they mean in terms of relative costs. The quantities of a particular grade or package that can be sold at price differentials sufficient to cover the cost differ-

entials for packaging, or of producing the product in the first place, may be too small to warrant selling that grade; or they may be so large as to warrant increased production of it.

The potential demand for new products is more difficult to measure.

In some cases the "new" product may be a familiar one, already on the market, the "newness" consisting only of its being made from farm products. An illustration of this is the manufacture of industrial alcohol from domestic farm products, where previously it has been made chiefly from molasses (mostly imported) and derivatives of petroleum. The job here is to estimate the costs of the new source, or of the new process, and see how it stacks up in the competition with existing processes and products.

In other cases, the new product may be really new, or at least not generally familiar. Avocado pears used to be a good example of this. Sweet corn, husked and wrapped in cellophane, is a more recent example of a new package (rather than product). In these cases, a controlled experiment, based on sales at different prices in a regular retail store is a good way to measure the consumer demand.

To ensure that the marketing system accurately reflects consumer demands:

The second objective is to ensure that the marketing system accurately reflects consumer wants. In war time, consumer needs are given greater recognition than in peace time, and a whole complex system of government rationing and price controls is usually employed to do the job. This method was continued for some time after the war in many European countries. But in the United States we got back to open market prices as reflectors of consumer demands as quickly as we could.

In peacetime, at least in the United States, this second objective is primarily a market price objective. The criterion or standard of reference here is the concept of the perfect market. This is analogous to the physicists' perfect vacuum, or frictionless motion—never attainable in actual life, but nevertheless an essential standard of reference.

The distinguishing feature of a perfect market is that a uniform price prevails, with proper allowances for differences in place, time and form. Most markets (groups of traders) are scattered

over a considerable area of space. The "uniform" price in a perfect market therefore is uniform plus or minus transportation and handling charges from one geographical point to another. This traditional criterion of uniformity in *space* is supplemented by a corresponding criterion of uniformity in *time*, plus or minus storage and handling costs from one period of time to another while basic supply and demand remain unchanged. Finally, a third criterion of market perfection is the uniformity of prices for different grades of a product—that is, uniformity in *form*, plus or minus conversion (processing) or production costs from or between different grades. These three criteria correspond with the orthodox division of utilities, in economic theory, into space, time, and form utilities.

In a perfect market, therefore, prices at any one time are uniform over geographical areas, plus or minus the cost of getting supplies from surplus to deficit areas. The price of fresh pork loins, for example, in New York City would be the same as the price in Chicago plus transportation and handling charges from the one city to the other.

Prices in a perfect market also would be uniform at any one point over periods of time, plus or minus the costs of storing from one period to another (or the costs of producing at different times). The price of cotton would rise after harvest by an amount equal to the costs of storage.

Finally, the prices for different grades of a product in a perfect market at any one point of time would be uniform plus or minus the costs of converting the product from one grade or form to another, or the relative costs of producing the different grades. The price of choice steers would exceed the price of good steers by the difference between the costs of producing the one and the other.

The three-fold criterion of the perfect market can be summarized in brief tabular form as shown in Table I on page 453.

This criterion, the perfect market, in which differences in prices equal differences in costs, is merely a specialized part of the criterion that is generally accepted for the whole field of economics—the equivalence of marginal revenues to marginal costs. This maximizes production from a given set of resources. In a perfectly competitive market (with horizontal demand curves for the products of individual producers) the equivalence of marginal revenues and costs leads to an equivalence of average revenues and costs.

TABLE I. FUNDAMENTAL ELEMENTS OF THE CRITERION OF THE PERFECT MARKET

	Time	Place	Form
(1) Prices	Price movements over long, medium and short periods of time.	Price differentials between different places.	Price differentials between different grades.
(2) Costs	a. Costs of production at different times and b. Costs of storage from one time to another.	a. Costs of production in different places and b. Costs of transportation from one place to another.	a. Costs of production of different grades and b. Costs of processing the same product into different grades.

This concept of the perfect market is useful also as a framework for classifying marketing research projects and organizing the content of marketing books,[12] as well as for appraising individual marketing problems.[13]

Max Brunk, however, disputes the usefulness of the concept, in the following words:

"... for a number of years now, marketing researchers have been obtaining facts based on well formulated hypotheses which serve to modify some of the basic assumptions behind the ideal market concept. If we must continue to ignore these modifications and return to a static ideal market concept for a framework within which to fit our studies, evaluate past work and plan future work, we can hope to make little progress. This does not deny the importance of competitive economic theory in the formulation and constant improvement of basic concepts, but it does seem to censure researchers for not having used theory in the development of concept modifications in the light of facts which have been thus far developed. Science progresses only to the extent that new hypotheses are developed from the testing of old hypotheses. We cannot expect to make much progress by continually basing our research on concepts which fail to grow. Needless to say, our marketing system today bears little semblance to that envisioned by classical economists."[14]

Bressler evidently anticipated criticism on the point, in the full paragraph on page 555 of his article. Apparently, however, this did not satisfy his first discussant.

Brunk makes one constructive suggestion. He says: "As for the need of a benchmark by which to measure accomplishment, it appears to me that the existing market supplies a more meaningful

[12] See Chapter 3 of my original *Agricultural Price Analysis*, Iowa State College Press, 1941, and the table of contents of my *Marketing Farm Products*, 1947.

[13] R. G. Bressler uses it well for both purposes in his *Agricultural Marketing Research*, this *Journal*, XXXI, No. 1, Part 2, Feb., 1949, pp. 553–562.

[14] Max E. Brunk, *Discussion* (of Bressler's paper), this *Journal*, XXXI, No. 1, Part 2, Feb., 1949, p. 563.

base. Such a base, of course, fails to indice maximum possible achievement."[15]

Brunk's point needs discussion. How does "the existing market" supply any kind of a base, still less "a more meaningful base," than the ideal or perfect market? How can you tell by looking at the existing market whether any improvement in its prices is desirable or can be made? How do you know what "improvement" is? In which direction, if any, should prices be changed? And how can you tell whether they would be any "be ter" than before? What does "better" mean?

To be specific, how would you know whether the existing short-time variations in futures market prices were wider or more frequent than necessary? What is necessary? How would you know whether price differentials between Chicago and New York were too wide or too narrow?

Yet I am not disposed to throw Brunk's criticism out entirely. I may well be that in some cases the open competitive market is an obsolete criterion of market performance. In some cases, the economies of scale may be so great that one large corporation can make or market a product at lower cost than a large number of atomistically competing small units, even though the large corporation exercises some monopoly powers. I would merely say that each situation needs to be examined with reference to this point and the appropriate criterion used for each case.

To reduce marketing costs:

Costs also fall under the three heads of place, time and form. There are costs of transportation from one *place* to another, costs of storage from one *time* to another, and costs of conversion from one *form* to another. These costs are the bases for the place, time and form differentials in prices discussed above.

These costs are involved at various points along the distributive system. Thomsen urges that more attention be given to the costs at the retail end of the chain, for those costs take the largest share of the consumer's dollar.[16] I think that probably he is right in this point. The size of the part of the consumer's dollar that goes to a specific function establishes a presumption that research in that

[15] Max E. Brunk, *Discussion*, this *Journal*, XXXI, No. 1, Part 2, Feb. 1949, p. 562.
[16] F. L. Thomsen, *A Critical Examination of Marketing Research*, this *Journal*, XXVII: 4, Nov. 1945, pp. 947–962.

area will yield greater results than research where there is less room for reductions to be made. But the size of the share of the consumer's dollar is not a sufficient criterion alone for determining the place where research projects are most likely to be fruitful. A prospector strikes it rich, not by working the biggest mountain, where traces of gold may be scattered all about, but by working the mountain, regardless of size, where gold is concentrated in veins. A marketing research project may be able to show how a 20 percent reduction can be made in a small-cost function, more easily than a two percent reduction in a large-cost function, and thus end up with a greater reduction in cents. And that is what counts.

Determining where the veins are is as difficult for a research man as for a prospector, and perhaps luck is as much involved in the one case as in the other. The development of criteria for choosing profitable areas for research stands as a challenge to research men and administrators both; we need to work out scientific objective methods analogous to the geophysical methods that have raised petroleum prospecting from a wildcatting proposition to a more scientific level.

LAND REFORM AND THE TRANSFORMATION OF AGRICULTURE IN HUNGARY

ALEXANDER ECKSTEIN*

HUNGARY remained one of the last strongholds of feudal or semi-feudal forms of tenure in Europe up to 1945. Less than one percent of the farm-holders owned almost half of the agricultural land. Close to one-third of the agricultural land was in holdings of over 1,000 cadastral yokes (approximately 575 hectares).[1]

A powerful landed aristocracy based on large latifundia survived the defeat of World War I and the consequent wave of agrarian upheavals sweeping Eastern Europe. It took another defeat in World War II and a revolution to bring about a subdivision of these large estates, through a series of measures known as the "*land reform.*"

Peculiarities of the country's historical, political, and economic development tended to keep feudalism dominant longer than in other parts of Europe. The resulting continuing inequities in land distribution aggravated the effects of acute population pressure upon arable land resources in a highly specialized and extensive type of agriculture.

The combined momentum of a landless agricultural proletariat, a poverty-stricken peasantry, and an underdeveloped agricultural economy resulted in a situation where some form of change became inevitable. When it came, the change involved not only a redirection of land policy but also significant transformations in the country's agriculture. These transformations and their effect upon farm organization, agricultural labor and employment are analyzed in this paper.

Land Reform of the 'Twenties

The basic land tenure pattern in Hungary was fairly definitely fixed by the time of the peasant liberation of 1848. Even after the peasants acquired ownership of the lands on which they worked, a large proportion of the country's agricultural area remained in

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* On leave from FAO; currently a fellow of the Social Science Research Council. The opinions expressed do not necessarily reflect the views of either of these organizations.

[1] Kerek, Michael; Agricultural Land Reform in Hungary, *Hungarian Quarterly*, Vol. 6, No. 3, 1940.

estates of over 1,000 cadastral yokes.[2] The agricultural economy continued to be characterized by a very large number of small farms and a comparatively small number of large estates.

As time went on the situation of the small peasantry deteriorated. Prevailing inheritance practices led to fragmentation of holdings, and overseas grain price competition forced many peasants into heavy debt. A considerable number lost their holdings and joined the ranks of those who even in 1848 were left landless. The potent land hunger of this agricultural proletariat furnished the strongest pressure for post World War I reform.

The short-lived revolutionary regimes of 1918 and 1919 initiated steps to solve the land problem. These beginnings could not be ignored even by the victorious government. Some measure of land redistribution was instituted, both to satisfy the pressing demand of the peasantry and to subdue its revolutionary force.

Altogether about one million cadastral yokes were appropriated by the State, representing about six percent of the total area in farms, and a higher proportion of cultivated land. Out of this total, slightly over 705 thousand cadastral yokes were distributed to almost 390 thousand individuals.[3] The average parcel was 1.8 cadastral yokes (2.56 acres).

The maximum allotment that could be obtained by the landless workers—the largest category of claimants—was three cadastral yokes. As a result, a very large number of uneconomical dwarf holdings were created. About 185 thousand landless farm workers and 113 thousand dwarf and small holders were the principal beneficiaries of reform. Besides obtaining land, they derived indirect benefits through the enlargement of community pastures by about 80 thousand cadastral yokes.

By 1931 redistribution of land was just about completed, so results of the 1935 Census returns can be taken as indicative of the effect of the reform.

The most striking feature of this table is that 306 holdings encompassed 11.8 percent of the land area, while over 664 thousand holdings embraced only ten percent of the land. Less than one-tenth of one percent of the landowners, with holdings of over 1,000

[2] No statistics of land distribution are available for this period, but it has been estimated that over one-third of the land was in estates of over 1,000 cadastral yokes.

[3] *Les Conditions de la Proprieté Foncière en Hongrie dans l'année 1935.* Published by the Royal Hungarian Central Bureau of Statistics, Budapest 1936, p. 15.

TABLE I. SIZE DISTRIBUTION OF FARMS IN HUNGARY IN 1935

Size class in cad. yokes	Number in each size class		Area in each size class	
	No. of farms	Percent of total number	Area in cad. yokes	Percent of total area
0–1	776,487	41.0	312,403	1.9
1–5	664,263	35.1	1,620,942	10.1
5–10	204,471	10.8	1,477,376	9.2
10–20	144,186	7.6	2,025,946	12.6
20–50	73,663	3.9	2,172,300	13.5
50–100	14,895	0.8	1,008,597	6.3
100–500	10,669	0.6	2,251,629	14.0
500–1,000	1,816	0.1	1,274,054	7.9
1,000–3,000	1,254	0.1	2,053,766	12.7
Over 3,000	306	Neg.	1,908,328	11.8
	1,892,010	100.0	16,105,341	100.0

Source: *Les Conditions de la Proprieté Foncière en Hongrie dans l'année 1935.* Published by the Royal Hungarian Central Bureau of Statistics, 1936.

cadastral yokes, possessed 24.5 percent of the land. On the other hand, 45.9 percent of the farmers with holdings of one to ten cadastral yokes, owned only 19.3 percent of the land.

The picture is considerably distorted by the inclusion of holdings with less than one cadastral yoke (1.421 acres). A number of these holdings, located near cities, were owned by small craftsmen and industrial workers who operated them for supplementary income. However, the majority of these plots were owned by people who earned their livelihood in agriculture, principally as farm laborers.

Comparing the 1935 distribution with that at the time of the last pre-war Census, in 1895, it becomes apparent that there was some shift in farm size distribution in favor of the smaller farms. The proportion of the area in farms of under five cadastral yokes increased by substantially more than the number. Also, the relative decrease in the area of farms of five to 100 cadastral yokes was much smaller than the proportionate decline in number. At the same time, the area in estates of over 1,000 cadastral yokes decreased from about 32 percent to 24 percent.

Effect of Reform Upon Land Tenure

The post-World War I land measures did not materially affect tenure conditions and relationships in Hungary's agriculture. Strip farming continued a basic feature of the country's agricultural pattern. On the other hand, close to 25 thousand entailed holdings

covering an area of 3.6 million cadastral yokes were still intact in 1935. Farm tenancy, in the sense of outright tenant operation, was not common, but leasing of land by owner-operators in order to enlarge their operating unit was spreading.

Widespread practice of strip farming aggravated problems on small holdings which were not economical in terms of size in the first place. In 1935, half the farms were composed of several plots, many times widely scattered. In fact these one million holdings were composed of 6.4 million plots—an average of six plots per farm. The average size of a strip was one hectare with many plots much smaller. It is evident that this type of farming permits only a very low level of productive efficiency, particularly in an extensive agriculture.

Strip farming is not peculiar to Hungary, but is fairly common in many parts of Europe. It is a product of the interaction of rapid farm population growth, limited non-agricultural employment opportunities, and inheritance practices which provide for equal division of land among all heirs. In many cases several separated parcels of land were allotted to heirs, in order to insure equity among them in regard to quality of land obtained. To the extent that this practice has been applied in the case of land distribution after the 1920 reform, it has tended to accentuate fragmentation of holdings.

Effect of Reform on Agricultural Labor and Employment

Landlessness of the agricultural proletariat, it will be remembered, furnished the most potent drive for the land redistribution of the 'twenties. However, even on completion of the reform, the number of farm laborers who acquired land was relatively small, so this basic problem remained unsolved.

In 1930, out of two million actively engaged in agriculture, there still were 769 thousand landless. Their number dropped somewhat, to 746 thousand by 1941, as a result of some further land settlement and movement to cities.[4] But the old problems of seasonal employment, unemployment and underemployment remained the plague of farm labor throughout the inter-war period.

Defining agricultural unemployment is at best complex, particu-

[4] Thirring, Lajos; *Foglalkozasi Eltolodasok 1930 es 1941 Kozt* (Changes in occupational distribution between 1930 and 1941)—Magyar Statisztikai Szemle, Jan.–Feb. 1947, p. 3.

larly under conditions such as prevail in Hungary. The dominant characteristic of Hungarian agriculture is a marked concentration upon grain production, with over 70 percent of the country's cultivated area in cereals. The average annual labor requirements of grain culture are low; but there is a very high peak load at harvesting, and secondary loads at planting and cultivating time. This seasonality in employment was greatly accentuated by the dearth of farm machinery and the prevalence of large holdings completely dependent upon outside labor for their farm operations. This type of farm organization demands a labor force adequate to meet peak seasonal requirements even though it is unemployed or very inefficiently utilized during the rest of the year. Off-season employment opportunities for farm labor were extremely limited due to the relatively low level of industrial development and activity. This additional factor tended to depress farm wages and real annual earnings. Thus the cost of labor was partly shifted by the large holdings onto society.

Inasmuch as inefficient labor utilization is firmly rooted in the prevailing pattern of farm organization, it not only affects landless farm labor, but the self-employed smallholding peasantry as well. In the latter case, of course, periods of full employment, partial employment and unemployment are not clearly distinguishable over the year, but they nevertheless exist. The large majority of small holdings with the prevailing type of agriculture are unable to utilize fully the labor of the peasant and his family all year round.

This under-utilization of the agricultural labor force in underdeveloped economies may be termed "disguised unemployment." It applies to a condition in which the marginal productivity of labor over a certain range is close to zero. This does not imply that labor could be withdrawn from agriculture without decreasing farm production, unless this withdrawal of labor is accompanied by improvement in technology, changes in farm organization, or improved agricultural skills and practices. [5]

A number of empirical investigations of labor requirements in Hungary's agriculture[6] seem to throw some light upon this problem.

[5] Under some types of conditions where the marginal productivity of farm labor over a certain range may be at zero or possibly even negative, part of the labor force could be withdrawn from agriculture, leaving technology, farm organization, and practices unchanged, without affecting farm production.

[6] Series of studies by Matolcs, Nagy, Kovacs, Szeibert and others conducted during 1930–39.

These studies show that in the early thirties there were about 1.3 million men, 580 thousand women, and 158 thousand children in the agricultural labor force. These were capable of supplying an estimated 471 million man days of labor as compared to an estimated total labor requirement of 360 million man days. This indicates a waste of 24 percent of the available labor-time supply. Actually 20 to 30 percent of the agricultural labor force was employed for less than 200 days during the year.

The 1945 Reform and Its Results

The land reform of the 'twenties was not designed to solve effectively the problems of land distribution, agricultural labor and unemployment. Neither did it further the establishment and extension of middle-sized efficient family farm units. On the contrary, it led to the creation of a large number of dwarf holdings, insufficient in size to provide an adequate income to the farmer and his family. He was still forced to seek labor on the estates, which had fewer work opportunities to offer because of their somewhat reduced size.

Thus essentially the same economic and social problems and conflicts that harassed the agricultural economy of the country prior to World War I were still present prior to World War II. They helped propel the revolutionary forces determined to abolish the landed aristocracy once and for all.

On March 18, 1945, the provisional government issued a decree concerning the *Termination of the System of Large Estates and Redistribution of Land to the Peasantry*, which provides:[7]

Lands and properties of traitors, fascists, nazis, war criminals, etc., are to be confiscated outright, without regard to size of farm. On the other hand, owners of estates of above 1,000 cadastral yokes forfeit the right to retain land, but are compensated for their holdings. Farms of 100 to 1,000 cadastral yokes may retain 100 (only 50 in the case of farms located within a radius of 30 kilometers from Budapest) with the rest to be redeemed. Farmers who work the land themselves may keep up to 200 cadastral yokes, but distinguished soldiers of resistance and liberation may retain up to 300 yokes. In the case of vineyards and orchards, the maximum holding is 20 cadastral yokes with the proviso that such land may not be used for other types of production than heretofore. Community

[7] Neplap, Debrecen, March 18, 1945.

pastures, agricultural research stations, government model farms and some others are exempt from all these provisions.

Forests receive separate treatment. All forests above 10 cadastral yokes are nationalized; those of 10 to 100 yokes become community, village or municipal property, while individuals may retain up to 10 yokes.

Holdings may keep as much farm equipment, livestock, buildings and other implements as are needed to work the remaining portion of the farm. Agricultural cooperatives absorb the balance of the equipment, some of which is retained for cooperative use while some is distributed to the farmers.

All landless farm servants and laborers, dwarfholders and small farmers are entitled to claim land. The maximum amount that may be allotted to anyone is 15 cadastral yokes of arable land and pasture, in addition to three yokes of garden and vineyard. In some exceptional cases, this may be increased to 25 plus five respectively. The new properties may not be mortgaged or subject to forced sale for ten years, except for taxes and the down payment on the land purchase price.

The new landowners are obligated to make a down payment of 10 percent of the purchase price, the latter to be fixed at twenty times the value of the cadastral net revenue. Down payments may be postponed for three years, with the remaining portion to be paid in ten to twenty annual installments. Estimates of the total cost to the peasants of the newly acquired lands have been set at 883 million forints (approximately 75.5 million dollars in U. S. currency).

On the basis of the law of 1945, about 43 thousand farms with

TABLE II. EXPROPRIATED AREA BY TYPE OF LAND USE

Land use	Area in cadastral yokes	Proportion of total
		Percent
Arable	2,879,112	51.4
Gardens	42,056	0.8
Vineyards	46,045	0.9
Meadows	345,133	6.1
Pastures	550,060	9.8
Forests	1,406,210	25.1
Other	331,029	5.9
Total	5,599,645	100.0

Source: *Gazdasagstatisztikai Tajekoztato,* Vol. I, p. 60.

close to 540 thousand cadastral yokes were confiscated outright and about 8,500 holdings, with 4.8 million yokes, redeemed. The total land made available for distribution was 5.6 million cadastral yokes which represents one-third of the country's land area.

These data indicate that over 3.2 million cadastral yokes have been distributed to individual claimants. This represents 58 percent of the total expropriated area. However, if forest land is excluded and the 3.2 million pastures allotted to village communities included, the relevant percentage rises close to 90.

The largest groups to benefit by the reform were the farm servants and laborers, who were landless, and the dwarfholders. Of these, farm servants fared best with an average per caput allotment of 8.4 cadastral yokes. While a holding of this size may not be conductive to prosperous farming under Hungarian conditions, it is considered to be above the minimum required for a farm family. Thus the status of this group has been considerably improved as compared to its state during the interwar period.

The average per caput allotment of the traditionally most disadvantaged group, the agricultural laborers, leaves them at the upper end of the dwarfholder category. This undoubtedly represents an improvement in their social status and possibly in their economic status. Many of these laborers, immigrants before the war, have now acquired a permanent home for the first time. Whether a holding of about five cadastral yokes is adequate to

TABLE III. DISTRIBUTION OF EXPROPRIATED AREA AND PER CAPUT ALLOTMENTS BY TYPE AND NUMBER OF BENEFICIARIES

Type of beneficiary individuals	Number of beneficiaries	Distributed area in cad. yokes	Average per caput allotment
Farm Servants	109,875	922,255	8.4
Agricultural Laborers	261,088	1,288,463	4.9
Dwarf Holders	213,930	829,477	3.9
Small Holders	32,865	143,131	4.4
Craftsmen	22,164	53,866	2.4
Professional Agriculturists	1,256	14,548	11.6
Forest Employees	1,164	6,998	6.0
Total	642,342	3,258,738	5.1
Other beneficiaries[8]		2,340,907	
Total		5,599,645	

Source: *Gazdasagstatisztikai Tajekoztato*, Vol. I, p. 60.

[8] Churches, public pastures, state forests, etc.

provide the minimum necessities for the new farmer and his family cannot be answered on a priori grounds.

Those dwarfholders who have acquired an average allotment of about four cadastral yokes have been lifted out of the dwarfholder category entirely.

A significant feature of the recent land redistribution is that about 97 thousand farm servants and 200 thousand laborers were still left landless.[9] Assuming that these were to receive an average per caput allotment of five cadastral yokes, an additional 1.5 million cadastral yokes would have to be found for distribution. This would necessitate lowering the permissible maximum size of holding from 100 to 50 cadastral yokes. There has been some pressure in this direction, but the authorities have been reluctant to carry out such a measure because of its potentially adverse effect upon total farm production.

The agricultural employment opportunities of these 300 thousand landless are extremely limited under the new conditions. With the disappearance of the large holdings, outside labor requirements have been drastically reduced. Therefore to the extent that these landless have not found non-farm employment opportunities,

TABLE IV. SIZE DISTRIBUTION OF FARMS IN HUNGARY IN 1947, BY NUMBER OF FARMS AND AREA IN EACH SIZE CLASS

Size class (in cad. yokes)	Number of farms in each class		Area in each size class	
	Number	Proportion of total	Area	Proportion of total
		Percent		*Percent*
0–5	1,406,325	68.1	2,871,958	17.9
5–10	388,179	18.8	3,388,857	21.1
10–20	175,428	8.5	2,789,353	17.3
20–50	71,164	3.4	2,359,004	14.7
50–100	14,864	0.7	1,295,506	8.1
100–200	5,525	0.3	714,512	4.4
200–1,000	4,034	0.2	1,352,728	8.4
1,000–3,000[10]	504	neg.	796,007	4.9
Over 3,...[10]	91	neg.	513,919	3.2
	2,066,114	100.0	16,081,844	100.0

Source: *Gazdasagstatisztikai Tajekoztato*, published by Hungarian Central Bureau of Statistics, Vol. I, No. 13, Dec. 1947, p. 696.

[9] Computed on the basis of comparisons with the 1941 Census returns on the assumption that any war losses or out-migration were compensated by natural increase.

[10] These are state holdings; there are none in private hands.

they are unemployed. Thus, part of the "disguised" labor surplus which was distributed over most of the agricultural labor force has been absorbed by these 300 thousand and converted, through them, into an open and real surplus.

Before attempting to appraise further the significance or effects of these recent land measures, it is essential to examine the new farm size distribution.

There are very few privately owned farms in the country today with more than 100 cadastral yokes. The 3.3 million yokes which are in larger units are state and public properties, mostly forests. For this reason, it seems appropriate to use in Table V farms of 100 yokes and less as the yardstick in attempting an evaluation of the new land situation and comparison with prewar conditions.

TABLE V. COMPARATIVE PERCENTAGE DISTRIBUTION OF NUMBERS AND AREAS BY FARM SIZE CLASS IN HUNGARY, 1935 AND 1947

Size class (in cad. yokes)	Number of farms		Area of farms		Average size of holding in each class in cad. yokes	
	% of Total Number		% of Total Area			
	1935	1947	1935	1947	1935	1947
0–5	76.1	68.1	12.0	17.9	1.3	2.0
5–10	10.8	18.8	9.2	21.1	7.2	8.7
10–20	7.6	8.5	12.6	17.3	14.0	15.9
20–50	3.9	3.4	13.5	14.7	29.5	33.2
50–100	0.8	0.7	6.3	8.1	67.7	87.0
0–100	99.2	99.5	53.6	79.1[11]	4.6	6.2

Source: See Table I and Table IV.

On examining Tables I and IV, it becomes apparent that the abolition of private estates above 1,000 cadastral yokes did not eliminate, but reduced considerably the inequities in landholding. The total number of farms was increased by almost 200 thousand as compared to 1935. The proportion of dwarf holdings (below five cadastral yokes) decreased, but the area in such farms increased sizably both in absolute and relative terms. As a result, the average holding in this group rose from 1.3 cadastral yokes to about two, which is an improvement even though it represents an uneconomical farm. However, the situation may be more favorable than this would indicate, since there are a large number of holdings of one cadastral yoke or less, located near urban centers and owned by industrial workers, craftsmen etc. Thus if the data would exclude

[11] The remaining 20% were mostly large state holdings.

these categories, the average holding in the dwarfholder category would be above two yokes.

The average size of holdings below 100 cadastral yokes increased from 4.6 to 6.2 cadastral yokes with the largest increase in the average of the 50 to 100 size class. This is due to the fact that prior to the new reform a much higher proportion of farms in the latter group was close to 50 cadastral yokes in size. However, with a ceiling of 100 cadastral yokes on size of farm, the larger holdings were reduced to this size, so the proportion of 100 yoke farms in the 50 to 100 yoke group increased, causing the average size of farm in the group to rise also.

It is apparent from the data cited that the 1945 reform went far beyond the land measures of the 'twenties, in that it completely abolished the latifundia in Hungarian agriculture and, by granting land to 400 thousand agricultural laborers and 200 thousand dwarfholders, created a large number of small farm units in their place. At the same time, it left about 300 thousand farm laborers landless, did not touch strip farming or customary inheritance practices, and thus left the way open for further fragmentation of holdings.

The execution of the reform was remarkably rapid. Less than three years were needed to complete this far-reaching land redistribution, while eleven years were required for a much smaller task in the 'twenties. However, the speed also had certain definite drawbacks, particularly in the early stages.

Appraisal of the 1945 Reform

The substitution of a large number of small holdings for the estates is likely to affect unit crop yields, density of livestock per unit of farm area, livestock production, crop utilization for food versus feed, share of crop marketed, efficiency of labor utilization in agriculture, and the whole pattern of farm organization. It would be premature to attempt at this time a conclusive appraisal of the economic effects of the 1945 reform. However, it may be worthwhile to indicate in broad terms the direction of the changes which may be expected under alternative sets of assumptions.

Low post-World War II yields in Hungary and other countries are sometimes adduced as proof of the negative impact of changes in farm size distribution upon farm production. But these low yields are as much a result of war devastation, consequent reduction in farm capital, and shortage of production requisites, as of

shifts in farm size distribution. It is however, true that if all other variables affecting farm production are kept constant, the net effect of far-reaching land redistribution is likely to be in the direction of lower crop, meat and milk production, with a lower share of the total farm product coming to market in the short-run.[12]

It is a handicap of most far-reaching land redistribution programs that they are usually instituted in a revolutionary post-war situation—that is, at a time which is politically particularly opportune, while it is economically most unfavorable. The establishment of a large number of new farms in a war devastated economy increases the agricultural capital requirements at a time of greatest capital stringency. Organization of new farms means more farm buildings, more tools and equipment, more livestock, and generally a higher investment per hectare. The landless agricultural laborers and dwarfholders, who comprise the bulk of the new farmers, usually have practically no savings or capital reserves, and therefore have to depend upon a disorganized and overstrained credit system.

The long-run net effects of changing size distribution, under static assumptions, are likely to lead, in addition, to a shift from wheat to corn production and to greater livestock numbers. However, these static assumptions, which are not too valid even in the short-run, become extremely tenuous in the long-run. On the basis of present indications, with government planning and intervention in the economic sphere, vigorous measures are being taken to improve farming practices. At the same time, such measures as organization of cooperative farm equipment stations may help to capture some of the economies of scale for the recently organized small peasant farms. Thus these measures may wholly or partly counteract the previously noted negative effects of changed farm size distribution.

However, to judge the success or failure of the reform on exclusively economic grounds may be misleading. This the more so since land reforms are not only economic but social and political measures as well. They are partly designed to reduce the social tensions and conflicts in agriculture by improving the status of the most disadvantaged groups. Their over-all success or failure therefore, must be judged in these terms as well.

Large landholdings which continued to be so important in Hun-

[12] This reasoning is based on the results of interwar investigations of comparative yields on small farms and on large holdings.

gary up to 1945 were perpetuated at the cost of a highly depressed landless agricultural proletariat and a poverty-stricken dwarfholding peasantry. It was a system which tended to aggravate such basic economic maladjustments as pressure of population upon land resources, "disguised unemployment" in agriculture, low levels of agricultural intensity, and retarded techniques of farm production. However, it would be a mistake to conclude that land reform in and of itself can cure these economic ills. It may represent a necessary institutional pre-condition for the agricultural development of the country, but the solutions for these basic problems must be sought beyond the framework of tenure reform, in policies designed to raise the productivity of agriculture hand in hand with growing industrialization of the economy as a whole.

Rising agricultural productivity and efficiency which is a necessary concomitant of industrial development may be greatly retarded by the impediments of smallhold and dwarf peasant tenure as established by the recent reform. Agricultural development may lag considerably behind industrial development and thereby slow down the latter. Under such conditions, new economic, social, and political pressures could be built up for another radical change in the land tenure system in Hungary.

TEN YEARS OF THE FARM TENANT PURCHASE PROGRAM

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Ten years' experience suggests that the Bankhead-Jones Farm Tenant Purchase program must be redirected if it is to serve a useful purpose in an era of high employment, rising national income, and rapid technical progress in agriculture. Many Tenant Purchase (TP) loans have been too small to make efficient use of family labor or to yield a "minimum-adequate" income when farm prices are not extremely high; indeed, some borrowers may have reduced their incomes by accepting loans. The loans have not been larger because local public sentiment and Congressional opinion would not tolerate much improvement in the status of tenants, sharecroppers, and laborers who were "on the government." Within the limits thus prescribed, it has frequently not been possible, even with the useful devices of farm planning and supervision, to create what can be called adequate units. A large increase in the amount of the average loan seems plainly called for even though land prices decline from their current high levels. But the question must be asked whether a TP program involving loans of, say, $20,000 or $30,000 can serve the purposes intended by the authors of the Bankhead-Jones Farm Tenant Act or, for that matter, whether it should play any important role in a national agricultural program.

So far, of course, the TP program has not played an important role. From its inception in 1937 through June 30, 1947, the period covered by this study, the Farm Security Administration (and its successor, the Farmers' Home Administration) made TP loans totaling $293,876,733 to 47,104 families. This is a very small beginning; there were still 1,858,421 tenants in 1945 and (if this were the objective) it would take the TP program nearly 400 years to make them all owners at the rate that has prevailed so far. The significance of the program does not necessarily rest on this basis however. Its proponents have always regarded it as a demonstration which (as President Roosevelt wrote in 1937) would be ex-

* The writer wishes to thank Professor T. W. Schultz for his criticism of an earlier draft of this paper and to express appreciation to friends in the Farmers' Home Administration who, while they do not agree with the conclusions reached, were generous with their assistance to the writer.

panded "to a scale commensurate with the magnitude of the problem as rapidly as our experience and resources will permit."[1] War and inflation of land prices have postponed expansion of the program, but it may take place fairly soon and on a large scale. In the Farmers Home Administration Act of 1946[2] Congress provided the machinery for rapid expansion by creating a mortgage insurance program to supplement the direct loans and by increasing the authorization for loans from $50,000,000 for direct loans to $150,000,000 for both direct and insured loans. If, as these changes suggest, something like a billion and a half dollars may be invested in this brand of tenure reform during the next ten years, it is surely important that the record of the TP program receive careful scrutiny. In this paper the writer undertakes to: one, trace the structural development of the program; two, summarize the record of loans made; and three, appraise the part the program may usefully play in the future.

The Bankhead-Jones Farm Tenant Act

Title I of the Bankhead-Jones Farm Tenant Act[3] authorized the Secretary of Agriculture to loan a tenant, sharecropper, or farm laborer whatever amount might be necessary to buy and improve a farm. The Act set no upper limit on the size of the loan and it did not require that the borrower have any resources of his own, although it did give preference—"wherever practicable"—to those who could make a down payment or who had tools and equipment for farming. The loan was to be repayable over as many as forty years at three percent interest and the Secretary was authorized to offer a variable payment plan "under which a surplus above the required payment will be collected in periods of above normal production or prices and employed to reduce payments below the required payments in periods of subnormal production or prices." The Act provided that the borrower receive a deed to the farm and that the Secretary take a first mortgage; during the first five years of the loan the borrower could not sell the farm except with the Secretary's permission.

Although it set no upper limit on the amount of the loan, or the size of the farm, the Act did in effect set a lower limit by specify-

[1] Message to Congress, Feb. 16, 1937, transmitting the report of the Special Committee on Farm Tenancy.
[2] Public Law 731, 79th Congress.
[3] Public Law 210, 75th Congress.

ing that no farm could be purchased unless "of such size as the Secretary determines to be sufficient to constitute an efficient farm management unit and to enable a diligent farm family to carry on successful farming of a type which the Secretary deems can be carried on in the locality where the farm is situated."

The Act required that loan funds be distributed among the states in proportion to farm population and the prevalence of tenancy. This meant that about two-thirds of the funds would be used in the South and one-fourth in the Midwest; in other regions the loans would have to be very few and far between.[4] This requirement also meant that funds could not be allocated from state to state to suit administrative purposes.

The Secretary was required to establish a committee of three farmers in each county where loans were to be made. The committees were to certify as to the eligibility of applicants and the reasonable value of the farms to be purchased. No loan could be made without certification by the committee and the loan could not be in excess of the amount certified by the committee.

Administrative Determinations

Administration of the TP program was placed in the Farm Security Administration, which had recently been created from the Resettlement Administration. FSA brought to the new program a point of view and a methodology which had evolved from relief and rehabilitation undertakings. Its approach qualified the Act in three important ways: 1, it set an upper limit on the size of the loan; 2, it set an upper limit on the economic status of eligible applicants; and 3, it made supervision and farm and home planning inseparable from the loaning process.

The limit on the size of the loan was set at the amount necessary to buy and improve a "family-type" farm, which FSA procedure defined as follows: "An efficient family-type farm management unit is a farm which furnishes full, productive, year-round employment for an average farm family and one which an average farm family can operate successfully without employing outside labor, except during brief peak-load periods at planting or harvest time. Such a farm must have the capacity to yield income on the basis of long-

[4] Based on the 1945 Census, the distribution was as follows: South 66.86 percent, East 2.65 percent, Midwest 21.83 percent, West 4.48 percent, and Territories 4.18 percent. With the maximum appropriation authorized ($50,000,000), less than one loan per county could be made in 21 states.

time prices which will maintain an average farm family according to acceptable living standards, pay annual operating expenses, pay for and maintain necessary livestock, and farm and home equipment, and pay off the loan."[5] While the farm could not be larger than this ideal, neither could it be smaller; the "family-type" farm might vary greatly in productivity from locality to locality but it would always be no more nor less than one average family could operate without much hired labor and it would always yield "acceptable" living standards. Under FSA procedure this formula was rigidly applied. Borrowers were even required to agree not to buy or rent additional land.[6] During 1938 an absolute limit of $12,000 was placed on loans because some applications under the family-size formula were for larger amounts than the Act seemed to the FSA administrators to contemplate.

FSA set an upper limit on the economic status of eligibles by limiting the loans to those who could not obtain "adequate credit at reasonable rates and terms" from other sources. This meant (so far as financial status was concerned) that anyone who could not obtain a bank loan for the purchase of what FSA considered to be a family type farm was eligible. Since a farmer would need at least 25 percent of the purchase price of a farm, as well as stock, equipment, and operating capital in order to obtain a bank loan, the upper limit of financial eligibility was thus set at a fairly high level.

Farm and home planning, which had been developed in the rehabilitation program of the Resettlement Administration, was given additional importance in the TP program. The borrower had two written versions of a plan. One was an annual plan, setting

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[5] This is the language of the procedure now in effect (FHA Instruction 421.1); it is essentially the same as that which was written in 1937.

[6] FHA Form 317 (an "informal agreement" having no legal status but suitable for framing and calculated to impress the borrower) provides, among other things, that the borrower and his wife agree not to hire outside labor except as called for in the farm plan, not to rent the farm or operate it under a share-cropper arrangement, not to rent or operate additional land, not to purchase additional land or sell any portion of the farm, to sell to a buyer approved by FHA if it should become necessary to sell, and to try to maintain the farm as a one-family farm. This was intended to achieve by voluntary agreement what the Special Committee on Farm Tenancy hoped to enforce by withholding title for 20 years—the preservation of the family farm once established.

From December 1942 until June 1946, as a war measure, borrowers were permitted to rent land but only on the basis of a written agreement reciting justification and specifying that the rental would end when the emergency passed. Even so, the procedure (Administration Letter 636) required that each exception to the rule be approved by the Regional Director. The present policy does not provide for exceptions.

up a budget for the current year; the other was a long-term plan which outlined the goals and management methods for several years ahead. The plan was supposed to be worked out by the borrower in cooperation with the county FSA supervisor and it was to be the basis of the government's educational effort with the farmer as well as an agreement or understanding between borrower and lender. The plan also served as the basis of supervision. The borrower was in more or less frequent contact with FSA farm and home supervisors.[7] The farm supervisor was responsible for administrative procedures in connection with the loans, for planning with the borrower, for giving on-the-farm technical guidance from time to time as necessary, and for reviewing borrowers' operations in a group meeting at the end of the year. The home supervisor advised the housewives concerning household accounts, nutrition, home production and preservation of food, health and matters of home economy generally.

The farm plans (as well as the farms purchased) fell into a few patterns; in each of the major agricultural areas there is a certain size and type of farm with which the TP program has been identified. All of the farm plans—even those in irrigated sections—call for diversification. Specialization has been almost entirely excluded. Production for home use has been stressed.[8]

The Act authorized the making of loans for the full purchase price of the farm *plus necessary repairs and improvements.* FSA established certain minimum standards of land development and of construction and required that these standards be met as a condition to the making of the loan. The standards of construction were based on considerations of safety and sanitation and were extremely modest (the average cost of 9,681 new dwellings built on TP farms through June, 1941 was $1,406); nevertheless, in a typical year one-third of the average TP loan was used for repairs and improvements. Very little of this expense was income producing.[9]

[7] In 1944 a Bureau of Agricultural Economics survey [*Study 122* (processed) Jan. 1946] based on a sample of TP borrowers in the South and Midwest showed that 90 percent of the Midwestern borrowers were visited from two to four times a year. In the South about one-third were visited three or four times, 20 percent were visited five or six times, and 22 percent were visited seven times or more. Sixty-nine percent of the supervisors reported spending from one-fourth to one-third of their time with the TP borrowers.

[8] Recently there has been an effort by top administrators to make the farms more "commercial." See the address by Paul V. Maris, *Making Good on What FSA Stands for from a Farm Ownership Standpoint,* (mimeo.) 1946, p. 8.

[9] The minimum standards are set forth in FHA Instruction 423.1 and 424.1.

TABLE I. PERCENTAGE DISTRIBUTION OF TP LOAN FUNDS BY TYPE EXPENDITURE, FISCAL YEAR 1941*

Area	Purchase of farm and Incidental costs	Land improvement	Buildings other than dwellings	Dwellings		Total
				New	Repairs	
United States	67.9%	3.6%	10.6%	14.3%	3.6%	100.00%
East	81.2	0.7	13.0	0.3	4.8	100.00
Midwest	81.9	2.4	9.7	1.4	4.6	100.00
South	60.9	4.2	11.1	20.7	3.1	100.00
West	78.9	2.3	7.4	6.6	4.8	100.00

* 1941 was chosen because the subsequent inflation of building costs caused curtailment of new construction. In the fiscal year 1947 "Purchase of farm and incidental costs" was 76.0 percent of the total for the United States.

Source: unpublished data from FHA. The distribution is given in dollars by states cumulative through June 30, 1940 in the *House Hearings on the Agriculture Department Appropriations Bill, 1942;* p. 82.

Engineering and farm planning assistance were provided by FSA without cost to the borrower. During the first year of a loan these and other (administrative) costs averaged $329.38; for the next four years the aggregate cost has averaged $667.08, and for the remaining 35 years of the full repayment period it is expected to aggregate an additional $1,945.65. This is a total of $2,942.11.[10]

The Tarver Limit

In five successive appropriations acts beginning with that of 1941, Congress provided that no loan might be made for the purchase of a farm of greater value than the average of all farms of 30 acres or more in the county where the farm was located. This was the so-called Tarver Limit, inserted in the Act each year at the insistence of Representative Tarver of Georgia, then chairman of the appropriations subcommittee. The loans in Mr. Tarver's state had averaged $3,900, an amount he believed to be "twice too high." In the south as a whole (as of June 30, 1939), the average loan was $4,668 and in the United States as a whole it was $5,402.[11]

According to these instructions, if a borrower resists the minimum standards "the remedy is not to force him to accept such standards against his will. On the contrary, the remedy is to refrain from making him an FO loan."

[10] Unpublished data supplied by FHA.

[11] Mr. Tarver's point of view was as follows: "We are dealing here with the very poorest class of agricultural people. I think around two-thirds of the farmers of my district are tenant farmers. I do not see the point of buying one of those men a farm worth $7,500 when you could buy four farms, for four tenants, at one quarter of the price, which would buy a fairly good farm in my district for a tenant and one with which 99 percent of the tenants in my district would be satisfied." *House Hearings,*

The Tarver Limit varied greatly from place to place (it was $962 in Jackson County, Ky. and $253,525 in Kenedy County, Tex.) but in 35 percent of all counties in the United States and 60 percent of all counties in the South it was less than $4,000. In many areas where the rate of tenancy was very high it was impossible to buy a family-type farm within the Limit.

If the loans could not be made in one county because the Tarver Limit was too low, funds could be shifted to another county of the same state. But in some states the Limit was too low in almost all counties (Alabama, for example, had only two counties with Limits above $3,000) and funds for these states could not be reallocated to other states because the distribution of funds among the states was governed by the terms of the Act. (Alabama, for example, got six percent of the national appropriation.) In these states it was not possible to use the full amount appropriated.

The appropriations act for 1944 contained (in addition to the Tarver Limit) a limit on the amount of funds that could be loaned in any one county. This amount was set at not more than twice what the county would receive if the funds were distributed among the counties on the basis of farm population and the prevalence of tenancy, provided, however, that any county might receive at least five loans. On this basis there were only 473 counties where more than five loans could be made. The restriction meant that funds could not be shifted from county to county to avoid the places where inflation of land prices was most severe. Because of the interaction of this so-called "Fund Limit" with the Tarver Limit and because of the effects of inflation, FSA was forced to return more than one-fourth of the 1944 appropriation to the Treasury.

This political interference handicapped the administration of the program, but it probably had little effect on the size of the loans that were made. There were political forces, however, which *did* influence the size of the loans by influencing the "family-type farm" standard itself. In the South, especially, public and Congressional opinion opposed setting the TP borrower above his neighbor; if the neighbor's status was woefully low, the borrower's would have to remain low too. Moreover there was a widespread feeling shared by many FSA personnel in the South, that a very modest improvement in the position of the borrower was all that should be expec-

Agriculture Appropriations Bill, 1941, pp. 953–954. A report on the size of TP loans is given in these hearings.

ted.[12] These opinions markedly influenced the local administration of the "family-type farm" standard and they account in large measure for the fact that the average loan was not larger.

The Fund Limit was intended to prevent FSA from concentrating loans in "colonies". The Act provided no authority for FSA to purchase land for subdivision. Yet in some parts of the South (the Mississippi Delta, particularly) it was almost impossible to obtain a family-type farm except by subdivision. In these places FSA optioned tracts and made individual loans to whatever number of tenants might be needed to effect the subdivision. By June 30, 1943 FSA had created 4,604 farms by subdivision.[13] From then until Dec. 31, 1947 only 1,348 farms were created by subdivision; the rate had slowed because of the Fund Limit, because of opposition from the American Farm Bureau Federation, which claimed that the Act was being "perverted", because of the increasing cost of building, and because FSA discovered that subdivision was "a very difficult thing to do well".[14] At the end of 1947 the average tract had been subdivided into 4.3 units; several tracts, however, had yielded more than 100 units.

Section 505 (b) of the Servicemen's Readjustment Act of 1944 made veterans of World War II eligible for TP loans to the same extent as if they were tenants. In the appropriations act of 1946 Congress earmarked $15,000,000 of a $35,000,000 appropriation for loans to veterans. These funds could be distributed without regard to farm population and the prevalence of tenancy and without regard to the Tarver Limit.

Beginning in 1943, land price inflation made itself increasingly

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[12] There was a good deal of controversy as to whether Southern borrowers should have bathrooms in new houses; the idea of a cropper, especially a Negro cropper, who was "on the government" having a bathtub while his neighbor had none was too much for some people to stand. So also was the idea of the borrower's having more stock or more land. The influence of this kind of opinion on the administration of the program can be seen in the words of Frank Hancock, then FSA Administrator, in his testimony (*against* the Tarver Limit, incidentally) before the Senate subcommittee on agricultural appropriations in 1945: "I am in full agreement with what I understand to be the principle underlying this restriction (the Tarver Limit). The government should not provide loans to set borrowers up on a higher plane than that of their neighbors who are successfully acquiring ownership of farms through their own efforts, and with their own savings, without government aid." Beyond this unwillingness to see the borrowers specially favored there was, no doubt, the fear that if their rise in the world was too rapid they might become "uppity."

[13] A record of subdivisions by states appears in *House Hearings on Agriculture Appropriations Bill, 1944*, p. 1647.

[14] Paul V. Maris in a letter to the writer. Mr. Maris added that FHA would resume making subdivisions as soon as building materials become readily available.

felt. This was true although FSA clung tenaciously to a conservative system of appraisal.[15] Despite precautions, however, price inflation affected the loans to some extent. "Our borrowers are probably paying more for farms or getting farms of poorer quality and location than heretofore", the director of the Farm Ownership Division of FSA said in 1946. "If we were openly to advocate a definite percentage increase in prices paid for farms, in addition to the small adjustment in long-time commodity prices, that very fact might cause an excessive relaxation."[16]

In July, 1946 the Bankhead-Jones Farm Tenant Act was amended by the Farmers Home Administration Act and the following November FSA and the Crop and Feed Loan Division of the Farm Credit Administration were merged into the new Farmers Home Administration. While it retained the main structure of the TP program, the new legislation made several important changes in it.[17] These changes had not had an important influence on the program as its tenth year ended on June 30, 1947.

The TP Loan Record

The before-acceptance tenure status of the borrowers who had active loans in 1945 is shown in Table II.

TABLE II. PERCENTAGE OF ACTIVE TP BORROWERS (1945) IN VARIOUS TENURE GROUPS AT ACCEPTANCE

Tenure group	United States	Midwest	South	East	West
Cash or standing renter	21.7%	17.2%	21.7%	43.2%	36.1%
Share renter	63.4	80.5	59.8	38.2	48.4
Share cropper	13.3	1.6	17.1	9.3	8.0
Farm laborer	0.7	0.3	0.6	2.5	4.0
Other	0.9	0.4	0.8	6.8	3.5

Source: Computed from FHA, *Release No. 3*, "Status of the Tenant Purchase Family in 1945."

[15] Early in 1948 FHA appraisers were still making their calculations on the basis of ten cent cotton in Alabama, $7.70 hogs in Indiana, 77 cent wheat in Nebraska, and 31 cent butterfat in New York. (*FHA Instruction 622.3*).

[16] Paul V. Maris, op. cit.

[17] The FHA Act made the following important changes in the TP program: 1, provided for Federal insurance of mortgages to supplement direct loans with the stipulation that the insured-mortgage borrower make a down payment of at least 10 percent; 2, increased the interest rate to 3½ percent (on insured-mortgage loan 2½ percent plus 1 percent insurance charge); 3, gave eligibility and preference to qualified veterans of all wars; 4, retained the formula for distribution of loan funds among the states but gave each state a minimum of $100,000 and provided veterans should be served in advance of the distribution of funds for tenant loans; 5, authorized

Although the Act specifically listed farm laborers among the eligibles, virtually no loans had been made within this very large group. This was not the result of deliberate policy; FHA (and FSA) procedure does not discriminate against laborers. However, the Act and the procedure give preference—"wherever practicable"—to applicants who can make a down payment or who have stock or equipment for farming, and this provision tended to bar farm laborers. Thirty-eight percent of the tenants in the South are sharecroppers (1945 Census) but only 17 percent of the Southern TP borrowers were sharecroppers at acceptance, a fact which indicates that the croppers, while by no means excluded, receive less than a proportionate share of the loans. The same was true of Negroes in the South. In eight Southern states having more than 30,000 colored tenants 49 percent of all tenants were colored (1945 Census) but in these same states only 23 percent of the TP borrowers were colored.

The size of loans varies greatly by regions.[18] In the South (as of Dec. 31, 1945) 61.8 percent of the loans were for less than $5,000 and only 5.9 percent were for more than $9,000. The comparable percentages for the Midwest were 8.6 and 36.8; for the United States as a whole the comparable percentages were 47.6 and 13.8.

TABLE III. ACRES IN CROPS, TP FARMS IN 1945* AND FARMS RENTED BY ALL BORROWERS BEFORE ACCEPTANCE

Area	Acres in crops		
	Rented before acceptance	Owned in TP farm (1945)	Percent increase or decrease TP over rented
United States	73	75	2.7
East	77	74	− 3.9
Midwest	122	109	−10.7
South	58	65	12.1
West	97	90	− 7.2

* Many borrowers supplemented their TP farms with rented land in 1945. The average acreage of cropland rented was then as follows: United States, seven; East three; Midwest, 17; South, five; West, nine.

Source: Adapted from FHA, *Release No. 3*, "Status of the Tenant Purchase Family in 1945."

loans to repair, improve, and enlarge farms of less than family size and to refinance indebtedness for that purpose; 6, substituted for the Tarver Limit a provision limiting loans to not more than the average value of an efficient family-type unit in the county as determined by the Secretary; and 7, converted the variable payment plan into a conventional arrangement for prepayment.

[18] The size of the loan is virtually the same as the purchase price of the farm plus repairs and improvements; only 4.6 percent of the borrowers made a down payment and the average was only $451.

These differences resulted from local variations in the "family-type farm" standard rather than from the—for the TP program—irrelevant fact that Southern applicants had less net worth.[19]

Except in the South, the TP farms have less cropland than did the farms the borrowers formerly rented. However, in 1945 the borrowers were still permitted to rent additional land. This rented land brought the total farmed by the non-Southern borrowers to slightly more than they had formerly rented.

Of the 11,233 borrowers (24 percent of all) who had repaid their loans in full by June 1947, 7,598 were known by FHA to have paid from farm income and to be continuing in operation of the farm when the final payment was made. FHA has no further record of the progress of these paid-up borrowers however. As of June 30, 1947, 4,606 TP loans had been liquidated by FHA.[20] Some of these loans had not been paid in full; the probable loss on these was estimated by FHA at $71,575, a negligible amount in view of the total loaned. The amount advanced to all liquidated borrowers, however, was $23,730,074. This sum, although it would be returned to the Treasury virtually intact, had not accomplished the purpose for which it was appropriated. The reasons for these failures, according to an analysis made by FHA in 1947, were chiefly accident, ill-health and old age (22.2 percent), change to other occupations (14.6 percent), dissatisfaction with location or community (11.7 percent), and deficiencies on the part of the borrower (10.9 percent). Inadequate farms acounted for relatively few failures (6.6 percent) and borrowers' objection to supervision for even fewer (2.4 percent).

The financial status of the active TP borrower in 1946 is shown by regions and for the United States in Table IV.

The 43,050 borrowers whose loans were active at the end of March 1947 had repaid 156 percent of the amount due under the repayment schedule.[21] Fifty eight percent of them were ahead of

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[19] In 1945, for example, the average Southern borrower got $4.04 in loan funds for every dollar of net worth, while the average Midwestern borrower got only $2.93. New York and Illinois borrowers had almost exactly the same average net worth at acceptance but the Illinois borrowers got loans averaging 60 percent more than the New York loans.

[20] FHA, *Liquidation of Farm Ownership Loans as of June 30, 1947* (Mimeo'd).

[21] Schedule is the amount required to amortize the principal and interest payments within the period of the note. On a 40-year loan bearing three percent interest schedule is 4.326 percent of the loan. The term "behind schedule" is used, rather than "delinquent," because, technically, the variable payment borrower may be billed for less than schedule. Actually, of course, there must have been very few instances since the start of the war when the bill was for less than schedule.

TABLE IV. STATUS OF ACTIVE TP FAMILY IN 1946

	United States*	East	Midwest	South	West
Assets, liabilities and net worth					
Net worth	$6,044	$8,461	$9,914	$4,654	$9,821
Debts other than TP	446	1,665	525	337	1,446
Chattel inventory	3,630	7,311	6,441	2,534	6,636
Income and Expenses					
Gross family income	4,315	7,764	6,499	3,366	8,610
Cash farm income	3,388	6,676	5,631	2,442	7,290
Non-farm income	363	467	318	356	811
Value of home-use products	565	621	550	568	510
Cash family living expense	856	1,314	1,232	700	1,552
Farm operating expenses	1,533	3,899	2,379	1,100	3,802
Use of net cash income					
TP regular payments	569	508	991	430	1,018
Net debt repayment	188	509	261	142	523
Allowable capital expenditures	488	819	879	335	1,133

* Territories excluded.
Source: Adapted from FHA, *Release No. 7, 1946 Status Report.*

schedule by an average of $951. Seventeen percent were behind schedule by an average of $266.

Repayment ability and net cash income were closely associated with size of loan.

On the basis of rather rough estimates,[22] it appears that a considerable proportion of the borrowers, especially the Southern borrowers, would find it difficult or impossible to meet scheduled repayments if farm prices were to fall to, say, 1928 levels. At 1928 farm prices, the 1946 production of 60 percent of the Southern and 44 percent of all TP farms would have been worth less than $2,000. If only the cash income from the TP farm is included (that is, if the value of farm-produced food used at home and of the products sold from *rented* acres is excluded), the 1946 production of the average Southern borrower (at 1928 prices) would be worth $748 and that of the average of all borrowers $1,957. If from this are deducted farm operating expenses (in the same ratio to cash farm income as actually obtained in 1946) and the scheduled TP payment, the remainder (the net cash farm income after TP payment at 1928

[22] These estimates were made with the assistance of the Program Analysis Unit, FHA, using state indices of farm prices provided by BAE. Their chief weakness is that the following states were omitted from the calculations because comparable indices were not available: Arizona, Colorado, Connecticut, Maine, Massachusetts, Mississippi, Nevada, New Hampshire, Ohio, Oregon, Pennsylvania, Rhode Island, Tennessee, Texas, Utah, Vermont and Washington. These states include 25 percent of all borrowers.

prices) would be $-19 for the average Southern borrower and $526 for the average of all borrowers.

There is, of course, a close relationship between size of loan and the borrower's level of living. In 1945 cash family living expense varied from $447 for borrowers with loans of less than $3,000 to $1,236 for those whose loans were $11,000 or more. FHA's emphasis upon improvements to meet minimum standards of health and safety (but not of convenience) has not caused the borrowers to have

TABLE V. SCHEDULE STATUS OF ACTIVE FO BORROWERS, CUMULATIVE AS OF MARCH 31, 1947

Area	Number of borrowers (percent) and average amount				
	On schedule	Ahead of schedule		Behind schedule	
	Percent	Percent	Amount	Percent	Amount
United States	25	58	$ 951	17	$266
East	34	48	848	18	302
Midwest	21	68	1,416	11	260
South	24	57	754	19	254
West	30	48	1,355	22	362

Source: FHA, *Report of Debt Payments by Farm Ownership Borrowers as of March 31, 1947.*

a markedly higher level of living in terms of specified facilities than the generality of resident-operators. In the South, 11 percent of all resident operators and 12 percent of the TP borrowers had running water in their homes in 1944; in the Midwest, the corresponding percentages were 24 and 25. Similarly, 27 percent of the Southern and 53 percent of the Midwestern resident operators had electricity as against 24 percent of the Southern and 50 percent of the Midwestern TP borrowers. In both the South and the Midwest, however, a larger proportion of borrowers than other farmers had radios and automobiles.[23]

It is not easy to judge the effect of farm and home planning and of supervision upon the borrowers. The most significant data are those contained in an unpublished BAE study, based on a sample of borrowers in the Midwest and the South, *Attitudes Toward FHA Tenant Purchase Program.*[24] According to this study, 26 percent of

[23] These comparisons are based upon a sample of 295 Midwestern and 388 Southern borrowers in 1944 (BAE, *Study 122*, processed, January 1946, p. 101) and the Census of Agriculture for 1945.

[24] BAE, Division of Program Surveys, *Study 122* (processed) January 1946.

the Midwestern and 18 percent of the Southern borrowers reported they had made no changes in their farming operations since obtaining their TP loans. Those who were aware of having made changes most frequently mentioned improved methods of soil cultivation, increased use of cover crops and pasture, and increased use of livestock. Very few mentioned increased mechanization or improvements in the physical plant. The borrowers who were most apt to change their farming operations were those visited by supervisors most often.

Although three-fourths of the Midwest borrowers said they had made changes in their ways of farming, only about one-fourth of them spontaneously mentioned the Farm and Home Plan in this connection. In the South, four-fifths of the borrowers said they had made changes, but only about one borrower in 15 mentioned the plan. Very few of the borrowers had what BAE interviewers termed an "inadequate" knowledge of the details of the plan, but less than half the midwesterners and only one-sixth of the southerners had what was called an "adequate" knowledge.[25] The borrowers who had changed their farming practices were those who were best informed about their plans.

Planning and supervision were not unpopular among the borrowers. Half the borrowers said their plans were helpful and a larger proportion considered the supervisors helpful. Four-fifths of the midwestern and three-fifths of the southern borrowers approved of the supervisors and only one or two percent said they actually disliked to have the supervisors visit. Home supervisors enjoyed about the same degree of popularity with the borrowers' wives. One-fourth of the midwest wives and one-half the southern wives said they would have run their homes differently without the Farm and Home Plan.

The BAE study revealed no relation between the borrowers' repayment status and change or lack of change in his farming practices, however, nor did it show any connection between repayment status and the nature of any changes that may have been made.

Tenant Purchase Perspectives

"It is to be doubted", Drs. Black and Hyson have written, "if

[25] The interviewers asked the borrowers specific questions about six aspects of their plans. A borrower who was able to supply information in any detail on all six was regarded as having an adequate knowledge of the plan. Detailed knowledge on three to five aspects of the plan was rated as fairly adequate. Ability to describe only one or two aspects was considered evidence of inadequate knowledge.

any program for agriculture in this country should be publicly supported which does not provide a net cash income for an ablebodied farmer in the prime of his life of at least $60 a month (in addition to the use of the farm dwelling and food and fuel obtained from the farm)."[26] Judged by this standard over a representative term of years, the TP program probably could not be justified in the South, where 70 percent of the loans have been made. Elsewhere, too, many of the loans would fail to pass muster if farm prices were anything less than favorable.

Attempts to define a minimum adequate farm income are of course bound to be highly valuational.[27] A more useful concept for the economist (although not entirely free of the value element either) is that of efficient size. But even if it is assumed, as it is here, that a family-type farm should be large enough, in terms of technology and capital as well as land, to employ the family labor efficiently, i.e., so as to give equal rewards (including non-monetary rewards) with comparable endeavor in other occupations, the task of expressing the standard in specific amounts of land or capital is fraught with hazards.[28] It is not unreasonable to say, however, that if it is to purchase an efficient family-type unit the size of the average TP loan should be doubled or even tripled. In the South, for example, a single-family one-tractor unit may require from $10,000 to $30,000, while in the Midwest the real estate investment for farms requiring 14 to 20 months of man labor is estimated to be as much as $32,970.[29] These amounts are indicative of the situation at the present time. Over the next 40 years, the period for which the TP loans are written, national productivity will doubtless increase steadily and spectacular changes in agricultural science and tech-

[26] *Quarterly Journal of Economics*, November 1944, p. 25.

[27] This can be seen from the fact that Black and Hyson believe a reasonable goal for public programs for farmers who happen to be veterans is twice as much as for others.

In 1941 FSA leaders set a very low standard, although certainly not from choice. They set the minimum cash living expense at $50 per year for each member of the family. This was $250 a year or $20.80 per month for a family of five. *Hearings of the Select Committee of the House Committee on Agriculture to Investigate the Farm Security Administration*, (Cooley Comm. Hearings), 78th Congress, 1st Session, 1943, Part 2, p. 852.

[28] This formulation is paraphrased from Joseph Ackerman and Marshall Harris (eds.), *Family Farm Policy*, Univ. of Chicago Press: 1946, p. 389.

[29] These estimates are from "Study of Agricultural and Economic Problems of the Cotton Belt," *Hearings Before Special Subcommittee on Cotton of House Committee on Agriculture*, 80th Congress, 1st Session, 1947, p. 19, and *Capital Needed to Farm in the Midwest*, Bulletin 389, Agricultural Experiment Station University of Minnesota, North Central Regional Publication No. 5, January 1946, p. 9.

nology are not at all unlikely. The amount of capital required for efficient family-type farming may therefore rise sharply. In this context, the question must be asked whether a TP program making an average loan of, say, $30,000 would serve the purpose of the Bankhead-Jones Farm Tenant Act, or indeed, any useful purpose at all.

The TP program was conceived in the South in answer to the question, asked in 1935 by the authors of *The Collapse of Cotton Tenancy:* "What is to become of the half million to million farm families—the two million to five million individuals—who are no longer needed as cotton tenants?"[30] As late as 1941 the administrators of FSA were assuming that the cities could not provide jobs for these millions and that therefore the only opportunity was to improve their status on the land.[31] Today the outlook is radically changed. A large number of farm people left the land during the war and it is now widely agreed that productive work can and must be found outside of agriculture for others who are no longer needed there.[32] The function of a long-term credit program in the South today is not to create the maximum number of minimum-sized farms, but to assist boldly and creatively in the reorganization of Southern agriculture—a reorganization which, now that its technical basis exists in DDT, super-phosphate fertilizer, and improved pasture grasses, is proceeding very rapidly. For this role, the TP program with its emphasis on planning and supervision, would be wonderfully well fitted if the loans were of sufficient size[33]

Outside of the South, technological advance since 1900 has caused a rapid drop in the number of inadequate farms and a steady increase in the number and size of family and larger-than-family farms.[34] The financial position of farmers is better than at any time

[30] C. S. Johnson, E. R. Embree, and W. W. Alexander, Chapel Hill: 1935, p. 46. It is interesting that these authors, full of sympathy for the tenants but writing in the depth of the depression, should have recommended "small plots of minimum size required to support farm families, probably twenty to forty acres in the cotton states."

[31] In March 1941 FSA's objective was "to reduce the number of farm tenants . . . to about one million during the next 40 or 50 years. This will mean converting tenants into owners at the rate of about 30,000 per year . . . ." *Cooley Committee Hearings*, op. cit. Part 2, p. 852. See also the "ultimate picture," pp. 860–861.

[32] See the testimony of the then Assistant Secretary, Charles F. Brannan, in *Hearings on Long-Range Agricultural Policy*, 1947, p. 9.

[33] The credit requirements listed in *A Conversion Program for the Cotton South* (BAE, mimeo'd. Washington: 1945) totaled (in millions) $2,386, broken down as follows: farm purchase or enlargement, $850; farm buildings, $632; equipment, $632; and livestock, $272.

[34] J. C. Ellickson and J. M. Brewster, "Technological Advance and the Structure of American Agriculture," this *Journal*, 24: 4 (November 1947) p. 838.

in our history; their liquidity has risen in recent years from about 4.5 to 23 billion dollars, a circumstance which has reinforced and accelerated the trend toward larger units. Borrowers having the larger, more efficient farms will find it easier to repay their loans (especially if amortization schedules take account of income fluctuations), but it will be harder for tenants starting from scratch to acquire enough capital for ownership; down payment requirements will be stiff.[35] In this outlook there is a small but useful place for the TP program in providing farm ownership opportunities for those capable tenants who are unable to make down payments.[36] With farm development and improvement loans, however, FHA might make a more important contribution in the Midwest and in the arid and semi-arid West; farm development and improvement (particularly as regards soil and irrigation improvements) is a field in which adequate credit has always been lacking. If the development and improvement loans were of sufficient size and if the amount and quality of supervision and farm-planning were increased somewhat, FHA might open this field with great profit to its borrowers.

Americans have always hated and feared land monopoly. Without falling into the error of creating farms that are too small, the TP program could be aggressively used to break up the large corporate land-holdings of the South and West, thus accomplishing what the Preemption Act, the Homestead Act, the Reclamation Act and many other laws have so far failed to do. This, in the writer's opinion, would be a highly desirable objective, but one justified on political rather than economic grounds.

The steady and rapid advance in the amount of resources required for efficient farming makes the infeasibility of converting large numbers of farm tenants into owners more and more apparent how-

[35] See J. F. Timmons, "Farm Ownership in the United States" this *Journal*, 30: 1 (Feb. 1948), p. 93.

[36] Although no attempt has been made in this article to evaluate the developments which have taken place since passage of the FHA Act, some comment should probably be made here regarding the insured-mortgage loans authorized by that Act. To obtain an insured-mortgage loan the borrower must make a down payment of at least 10 percent. This will exclude most Southern tenants (only about one in ten of its present borrowers could have met that requirement without impairing operating capital, FHA estimates). In the Midwest, the down-payment requirement will cause FHA to select its borrowers from an even higher socio-economic group. This will mean that the gap between the amount of capital which could be rented and the amount which can be borrowed (a gap already sizeable in the case of the borrowers who receive 100 percent loans, Table III suggests) will be widened. Elimination of the variable payment feature and (in other legislation) increasing the interest rate on both direct and insured loans to four percent will further decrease any advantage the non-Southern borrower might have in borrowing as against renting.

ever. The problem of rural poverty and insecurity, it now seems quite clear, must be solved in the cities. This is a conclusion that will be resisted by many valiant people who have struggled with great skill and tenacity to make the TP program a vehicle of reform in a segment of American life which was, and still is abysmally in need of reform. But the fact—the heartening fact—is that national and agricultural productivity are moving sharply upward and, moreover, the time for more fundamental reforms is near at hand.

THE BRANNAN PLAN AND FARM ADJUSTMENT OPPORTUNITIES IN THE COTTON SOUTH

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I. Income Effect

NO OTHER major agricultural region in the United States has more to gain for itself, or can add more to the sum total of national economic well-being as a result of increased income than can the cotton South. Increased income can provide a base out of which to finance long needed capital investments in both physical and human resources—investments for which the marginal rate of return is extremely high and without which there can be no real improvement in the South's productive capacity. The necessary funds for these investments, except in a few short periods of highly favorable economic conditions, however, have not been obtainable.

The rural South probably remains the most undeveloped market to be found in the United States for the products of both factory and farm. When they have high enough incomes, southern farm people buy their share of automobiles, refrigerators, electric stoves and other conveniences and services that are a part of our modern culture. They also eat their share of a large variety of nutritious foods, much of which is shipped into the South from other farming regions. The percent of farm population in low income groups in the South is higher than in any other section of the United States as indicated by the following data.

PERCENTAGE OF FARMS (OR FAMILIES) WITH CASH SALES OVER $400, HAVING SPECIFIED SALES IN 1946[2,3]

Range in gross income	Percent of all farms				Approximate net cash income
	U. S.	North	South	West	
$ 400–999	22.0	13.7	31.9	14.9	$ 200–499
1,000–2,499	30.4	23.3	39.6	20.6	500–1,249
2,500–5,999	27.4	34.0	20.7	26.2	1,250–2,999
6,000 and Over	20.2	29.0	7.8	38.3	3,000 and Over
Total	100.0	100.0	100.0	100.0	

[1] The author acknowledges substantial aid in the preparation of this paper from Robert G. Spitze and Waldo S. Rowan.

[2] Basic computations by Farmers Home Administration and B.A.E. Approximately 1,000,000 farms with less than $400 cash sales were excluded because they were self-sufficient, part-time or retirement farms. As compared with 1946, farm income in 1948 will be lower than in either 1946 or 1947.

[3] From Public Affairs Bulletin No. 67, Library of Congress, Washington, D. C., March 1949.

With such a high proportion of the people possessing a high propensity to consume, any increase in income to these consumers will have a healthy influence on the maintenance of a flow of purchasing power in the total economy.

The Brannan Plan aims at a continuation of the present favorable level of farm income relative to non-farm. From an income standpoint the South has much to gain from these proposals in contrast to existing legislation which provides price supports only on a few basic crops and at some 20 percent lower levels on these. If a favorable level of income to Southern agriculture can be maintained, the South has the opportunity to continue the rapid progress made in recent years in adjusting its farming economy; that is, if it does not at the same time interfere with the movement of resources out of one kind of employment into another, either within agriculture or between agriculture and the non-farming economy.

It is recognized, of course, that such a price plan as the Brannan proposal cannot supply all the aid needed by the relatively poor and inadequate farms. Supplementary assistance is needed here. Neither would this plan change the relative income standings of the low and the high income farmers, a change which is politically and economically feasible only over a long period.

II. Effect on Resource Use

Artificially fixed product price relationships provided for in price support programs can themselves be a major obstacle to a desirable use of resources. In the South, however, the fixed price relationships as proposed in the Brannan Plan are not likely to have any major effects on resource uses at least until considerable progress has already been made in farming adjustments. The responsiveness of cotton farming to price changes is greatly limited by many other, and perhaps more important, resistances. Included among these are such factors as: (a) Backing up of an abundance of cheap, unskilled, untrained labor on farms as a result of high birth rates and occupational immobility. (b) The forms and amounts of capital which are adequate and appropriate for cotton farming, but inadequate and inappropriate for many other kinds of production. (c) A high percentage of tenancy which hinders development of long-time farm production plans and thus closes to many people otherwise feasible adjustment opportunities. Where farmers in the South have been able to overcome these obstacles, they have been

able to make adjustments that have been profitable under any recent historical set of price relationships. In the future these will continue to be the crucial considerations rather than the precise level of cotton prices relative to other farm products. Actually, during the recent decade of high prices for agricultural products, there has been a sizeable shift from crop to livestock production in the South.

CASH INCOME FROM THE SALE OF CROPS AND LIVESTOCK SOUTH CAROLINA AND GEORGIA, 1940 AND 1948

	1948	1948	1948 as percent of 1940[4]
Livestock and Livestock Products	$ 51,650	$232,598	450
All Crops	190,258	640,018	336

This shift was made at a time when the prices of milk and beef were favorable in comparison with cotton and tobacco and perhaps even more important when the level of income to farmers was high and labor was relatively scarce. The Brannan Plan proposes to maintain livestock prices at this favorable level in addition to a relatively high support level for the crops. The maintenance of these recent price and income relationships would, of course, facilitate continued adjustment in the South to livestock. In contrast, existing legislation offers no assurance that livestock products will not drop to a level unfavorable to that of cotton and tobacco even though these are supported at somewhat lower levels. To the extent that additional price certainty would result in more production of supported perishable products due to shifts in enterprises, the consumers will realize more abundant supplies and lower food costs. With the large amount of resources not fully employed and the relatively low income pattern, the South stands to gain here with lower food costs and subsequent higher standard of living for both its urban and rural people.

Price certainty, however, is not to be confused with market certainty. In his statement on April 7, Secretary Brannan stated: "For fluid milk, marketing agreements and orders should be continued." High price guarantees secured by marketing quotas, instead of facilitating the conversion from cotton to dairying, can very effec-

[4] Prices of both livestock products and crops in 1948 were around 300 percent of 1940.

tively hinder such conversion. Much depends here, as is the case with many other phases of the Brannan proposal, upon choice as among the various alternatives suggested in the plan for the maintenance of high support prices.

Under the new proposal two of the so-called basic commodities have been deleted in Brannan's priority list. Though these crops, peanuts and rice, are not so important relative to tobacco and cotton, they are the sources of much of the income in certain sections of the South. Peanut producers usually can shift to other production and this industry is realizing new markets that may affect the price level. However, acreage allotments are already in effect. Peanut producers would have an alternative market through hog production in areas where there is adequate fencing. Rice on the other hand, is grown in areas where alternative use of the resources is restricted.

There is little warrant for the fears that artificially supported high farm incomes will intensify the problem of population pressure on land resources. It is doubtful that any recent set of price relationships is an adequate explanation for the origin of this problem. And in turn, it is doubtful that the solution of this problem is to any appreciable extent contingent upon changes (at least any immediately forseeable changes) in price relationships. Involved in this problem of population pressure on resources is the production of human beings. This is a kind of production in which the South, at least in numerical terms, excells other farming regions. It is perhaps, even more than cotton, the South's major surplus product. When this product clears the market at a fairly remunerative level, cotton also clears the market as fairly good prices. When labor is cheap enough cotton can be grown at a very low level of prices. Attempts to deal with this surplus of labor solely from the demand side may give temporary relief, but only temporary relief if the present high level of labor supply continues.

In many parts of the South, of course, there are few opportunities for a marked change in the allocation of resources without the movement of large numbers of people off the farms and without a corresponding increase in the supply of capital. But even this is an over-simplified statement of the obstacles to agricultural adjustments in the South, as is perhaps well illustrated by what has happened in Greene County, Georgia, in the last few decades. In

Greene County the Soil Conservation Service in its land-use capability survey classified approximately 144,000 acres of land as suitable for cropland uses. Yet in 1944, cropland harvested was only 51,296 acres. Here acres of cropland used per farm family averages about as low as it was before nearly half the farm families, under the tremendous impact of the cotton boll weevil, moved away in the 1920's. Judged by the amount of land in use per farm family one finds here as great pressure of population on resources as occurs in most parts of the South. Yet not infrequently, one also finds many farm families living on farm units that have as much land idle as is in productive use—land that is about as productive as the land in use.

Recognizing the tremendous adjustment opportunities and problems in this general part of the Piedmont, the Farm Security Administration selected Greene County as the location for an intensive credit program. To the present time, slightly more than 1,000 farm families in the county out of an estimated 1,600 farm families now in that county have received liberal credit and intensive supervision under terms of the Farm Security Administration or its successor, the Farmers' Home Administration. Consequently, in recent years there has probably been little capital rationing in the county in any meaning of that term that is relevant to action.

On the whole, this program has accomplished much good, especially viewed from the standpoint of the tremendous difficulties faced. With liberal credit and supervision, a few farmers in the county have made the conversion from cotton to combination cotton-livestock farming. Several of these beginning with a minus net worth have paid for their farms and for capital additions needed for conversion in type of farming in three to five years. But it remains that for the majority of farm families aided by the Farm Security Administration in this county, there seems to be little hope of increasing their incomes by internal farm adjustments, unless they can do so using one-mule farming equipment and producing their usual acreage of cotton combined with feed and food production for farm and home uses. Records covering several years of their experience indicate that more capital than can be effectively used for such limited purposes on these farms is an economic waste. This is not because of any scarcity of land suitable for an expansion in their farming operations, nor because they lack access

to capital, but because with their valuations and their ideals and purposes, it is an almost insurmountable task to induce them to make the change from cotton to other kinds of production. Increased investment in education will necessarily have to go hand in hand with increased investment in physical capital goods if those physical capital goods are to increase the productivity of these workers. But adjustments necessarily have to begin with these people as they are. Because of their age, size of families, lack of education, and other limitations, it is also doubtful that many of these farm families would fare much, if any, better in non-farm employment of the kinds available or of the kinds for which they are now fitted.

If this same general situation is fairly widespread in the South, then there are many people for whom cotton production is about their only feasible production alternative, whether cotton is 27 cents per pound or only 10 cents per pound. Whatever else one may say of the problem of rural poverty or of rural welfare (within which category the problem of economic efficiency in its broader social context would seem to be embraced), it is at least a problem for which remedies cannot be easily superimposed, even by overall price support programs. Indeed, apart from an increased awareness of the existence of problems on the part of the people who themselves are most affected, including an awareness of means suitable for their solution, there is probably no adequate solution at all. Increased educational opportunities can help people develop the values and ideals without which they have little incentive to change. A high price and income policy is likely to have little effect here except as it may indirectly increase investment in the education and cultural development of the people.

III. Production Control

In the first section of this paper the importance of a high level of income was stressed as a means of facilitating farm adjustments in the South. The second section attempts to point out the limitations of relative prices in bringing about a desirable allocation of resources in the South. But over the long pull, and to the extent that these other barriers to efficient resource use are overcome, relative prices will guide resource use in the South as elsewhere.

This section will be devoted to a brief statement of the conditions within which production controls may be used to improve farm

income and resource use in the South. In the interests of brevity the discussion will be limited to cotton. Acreage allotments and marketing quotas for cotton appear to be a certainty under existing legislation as well as under Brannan's proposals. What benefits can be expected from them? The demand for American cotton is a part of a broad demand for fibers. The supply of American cotton is a part of a highly competitive world supply of cotton and other fibers. It should be obvious that cotton prices determined by these influences cannot be raised significantly by restrictions in the supply of American cotton alone. Unless cotton is moved into other countries with the help of a subsidy, cotton growers would lower their income from cotton rather than increase it by production restrictions.

Yet because of the probable severe undesirable income effect on cotton producers in the years immediately ahead, if cotton prices were allowed to fall to free market levels without income supplements, price supports and acreage restrictions may assist Southern farmers in making the necessary adjustments in their farming operations. If livestock prices can be maintained at relatively favorable levels, and if aggressive educational and credit programs can be organized as a supplement to the price support and marketing quotas for cotton, resources freed from cotton production may be diverted into livestock production at a fairly rapid rate. The important considerations are that appropriate government export programs be developed to maintain a reasonably large export of American cotton, that domestic cotton prices not be maintained at levels which significantly stimulate increased substitution of domestic synthetic fibers and that cotton prices not be held at such high levels relative to other farm commodities such as livestock products, as to remove the present economic incentives for shifting to diversified farming operations.

If production controls are utilized to implement price supports for cotton within these limitations, significant progress should be made both in the organization of cotton production and in the substitution of livestock for cotton, lessening the need for continued export subsidies and government income supplements in the South.

IV. Conservation Measures

With a predominance of row crops, long seasons of exposure, a dense population in agriculture, and low farm income, much of the

soil in the South has been badly depleted. A commendable beginning has been made on this problem by the various educational agencies, A.A.A., and Soil Conservation Service. In addition to the understanding of the need and method of conservation, farmers must see a security of return on their time and money in the short run to invest in the soil.

So far price supports to maintain an adequate income for farmers have had only an indirect relation to programs designed to encourage conservation. Farmers often fail to see the contribution conservation practices make to income received for their production. The Brannan plan proposes to tie these two segments of agriculture together in two ways. To the extent that conservation practices mean more forage crops, proposed price supports on livestock products assures farmers a favorable return for them. Even more directly a farmer must meet minimum conservation requirements in his farm plan to be eligible for price supports under the new proposals. Of course the requirements for conservation in this plan are unknown and subject to suspicion. For the South, it must be realized that measures to improve conservation of the soil within socially acceptable means meet a dire need. Certainly the maintenance of a high level of income and the supporting of livestock prices at a favorable level with crops are additional factors in the plan to encourage conservation.

V. Other Provisions Needed

The Brannan Plan, even though the level of price supports remained at proposed 1950 levels, would be a major improvement over existing legislation. But if enacted into law the Brannan Plan should be amended to provide for more price flexibility, at least in the event sufficient funds are not appropriated to accomplish the income objective of the program. Otherwise, it may result in widespread economic displacement. It might also be amended to extend the compensatory payment approach to storable commodities. (With modern food preservation methods much of the validity for the distinction between perishable and non-perishable commodities disappears, with the distinction if valid turning more on economic than on physical grounds.) For cotton, however, if we can assume that the government would institute an effective resale program, disposing of excessive stocks at world market

prices, then the compensatory payment approach, as opposed to loans (that in effect likely may become direct purchases), would do little more than add to administrative costs. The loan or direct purchase approach would mean, of course, that government would perform more of the trading functions, a likely objectionable feature from the standpoint of the cotton trades industry.

An income support program tied to commodity marketings obviously is not a solution of the income problem of farm people who produce little or nothing to sell. This perhaps is the major weakness of the Brannan plan from the standpoint of many Southern farm people. On the other hand, there probably remains to be worked out what is a politically feasible plan of national income distribution adequate for the solution of the income problem of extremely low income farm people.

Presumably price support programs for Southern crops, especially cotton and tobacco, are predominantly programs for helping low income farmers. Out of 1,589,706 farms reporting cotton harvested in 1939, almost 80 percent, 1,243,464 reported fewer than eight bales of cotton harvested. These farms accounted for 49 percent of the acreage and 37 percent of the cotton produced. The significant economic fact is that this large group of farmers, almost all of whom were in the A.A.A. program, had an average value of farm products sold, traded, or used by the farm household of $560.[5]

Essentially the same situation prevails for tobacco. Even more farmers are growing small acreages of tobacco than before allotment programs were started. Probably 75 to 80 percent of all farmers reached would be classified as low income farmers.

With but a few modifications the Brannan plan contains no new provisions that could not be found in present and past agricultural legislation. Enacted with a view to early amendment wherever experience reveals it to be inadequate or inappropriate in either means or objectives, or preferably provided sufficient discretionary authority for its administration, including authority for more flexible prices, the Brannan plan may be instrumental in effecting a more orderly adjustment in agriculture during the post-war years. Certainly the administrative authority should be broad enough to prevent a recurrence of such wastage as that in the

[5] Census of Agriculture: 1940, Special Cotton Report, page 2.

present potato program. At best any approach to the income problem of agriculture may be attended by some wastage of human and physical resources, including a free price policy, if southern economic history has any meaning for this problem. It is also doubtful that anyone has thus far found a single simple answer to either the farm price and income policy issue or to the problem of agricultural adjustments in the south.

GREAT PLAINS AGRICULTURE AND BRANNAN'S FARM PROGRAM

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THE agricultural program presented to Congress by Secretary Brannan in April and May departs in several respects from the programs which have been followed since the early days of the New Deal. A revised concept of parity which places the base for computation on income rather than on price, a change in method of stabilizing farm income, a device for preferential treatment of the family farm, and a greater emphasis on farmer responsibility and initiative for instituting production or market controls are main features of the original presentation.

Brannan's program is based on the idea of maintaining farm income through (1) production payments on non-storables, and (2) high support prices for storables. The non-storables account for about 75 percent of the gross income of agriculture. Prices for these would be allowed to seek the market level and prices for storables would be maintained according to the new support formula. The reaction of farm leaders to the program has varied from coolness to outright opposition, the chief exception being the Farmers Union.[1] Most of the producer groups which have testified have indicated their preference for price support rather than production payments whenever the choice has to be made. Some have indicated that they would favor rather strict production and marketing controls if necessary to maintain the prices of their products.[2]

Arguments advanced by Brannan when presenting his program and arguments advanced in most of the testimony which has fol-

[1] See *National Farm Program*, Hearings before the Committee on Agriculture, House of Representatives, 81st Congress, 1st session, April 11–May 19. See especially the testimony of the following organizations: Farmer's Educational and Cooperative Union, April 27; the American Farm Bureau Federation, April 28; The National Grange, April 30 and May 12; American National Livestock Association, May 2; National Woolgrower's Association, May 2; The Texas and Southwestern Cattle Growers Association, May 2; National Cooperative Milk Producers Federation, May 3; National Potato Council, May 4; National Council of Farm Cooperatives, May 10.

[2] This statement applies especially to the testimony of the National Cooperative Milk Producers Federation and the National Potato Council. An exception is the National Woolgrower's Association testimony. The American National Livestock Association reiterated their opposition "to governmental subsidies and controls." See references cited in footnote 1.

lowed appear to develop from the major premise that depressions in an economy such as ours are "farm bred and farm led." This premise, which may or may not be tenable, has focused attention on *how* agricultural income is to be supported rather than *is* it to be supported. If the premise is accepted a choice between the methods available for supporting income is imperative. The split between the producer group solution in the interest of their own welfare, and the solution in the interest of the general welfare may become the central issue. The interest of the general welfare may become so apparent as to force adoption or modification of certain of the proposals which are being debated. In spite of recent testimony, this action may be hastened by difficulties of administering the current price support program.

How would Brannan's program work in the Great Plains and what modifications may be suggested? Would it provide farm income stability and increasing efficiency in production? Or would it put Great Plains farmers in a production strait-jacket without corresponding income compensations? A definite answer to these questions cannot be made at this time because the answer depends on the level at which controls may be instituted and the conditions which are attached to production payments, price supports, etc; but it is possible to appraise the merits and the shortcomings of the broad outline presented by Brannan.

What does the Great Plains area require in an agricultural program? The area is peculiar in two respects: (1) the extreme variability or flexibility required in operations to reach maximum efficiency, and (2) the extreme variability in income associated with a fluctuating dry-land crop and range livestock economy. Futhermore, in some areas of the Plains specialization in a single enterprise—typically wheat, beef cattle, or sheep—is the rule rather than the exception. The program which would be best adapted to the area should do the following: (1) promote increasing efficiency in resource utilization; (2) counteract the extreme instability of income; and (3) move toward an expanding level of real income and greater social welfare. What does this involve?

Resource Utilization in the Plains

Great Plains agriculture is still in a stage of rapid readjustment. The overcapitalization following World War I, the forced liquidation of the early '20's and the drouth and low prices of the '30's,

have been followed by an unprecedented boom. The boom is the result of high prices and of unusually favorable weather accompanied by rapid advances in technology. The number of farms is declining and farms are still growing larger (Table I).[3]

TABLE I. NUMBER AND AVERAGE SIZE OF FARMS IN THE GREAT PLAINS STATES

States	Number of farms		Percent decrease in number	Average acreage per farm*		Percent increase in size
	1935	1945		1935	1945	
Montana	50,564	37,747	25.4	940	1,557	65.6
N. Dakota	84,606	69,520	17.8	462	590	27.7
Wyoming	17,487	13,076	25.2	1,610	2,533	56.7
S. Dakota	83,303	68,705	17.5	445	626	40.7
Colorado	63,644	47,618	25.2	471	761	61.6
Nebraska	133,616	111,756	16.4	349	427	22.3
Kansas	174,589	141,192	19.1	275	344	25.1
Oklahoma	213,325	164,790	22.8	166	219	31.9
New Mexico	41,369	29,695	28.2	831	1,671	101.1
Texas	501,017	384,977	23.2	275	367	33.4
All States	1,363,520	1,069,076	21.6	355	501	41.1

Source: United States Census of Agriculture, 1935 and 1945.

* In 1935, large acreages of "free" land were used by ranchers without legal control and these acreages were not included in the census reports as part of the farm unit. Since then, competition for the use of grazing resources has forced operators to lease or buy most of this land and the acreages are included as part of the farm unit in later census reports.

If public programs do not limit the size of farms, the trend on the Great Plains toward fewer but larger farms may continue for some time. The major wheat growing areas of the Plains, and much of the agriculture of irrigated areas appears suited to a high degree of mechanization which is easily adapted to the larger farm units. Ranches have been changing in four respects. (1) Existing ranches have expanded to the extent that nearly all grazing land is now under the legal control of some operating unit. (2) Fewer animals are being grazed on a given acreage. (3) Costs per animal unit have risen. (4) Capital position of the typical rancher has improved.

The combination of high prices and above normal rainfall which has occurred since 1941, within a setting of increasing mechanization, has resulted in a marked expansion in wheat acreage.[4] Land

[3] The trends shown in Table 1 appear to have accelerated since 1945.

[4] In the Plains area of the 10 Great Plains states more than four million acres of grasslands were broken for crop during 1945–48. The breakdown for individual years

which was submarginal for wheat production in the '30's became highly profitable for wheat during the war and the early post-war years. With lower rainfall or lower prices the margin will roll back, but not to the former levels because of the greater efficiency of modern equipment and of improvements in varieties of crops and tillage practices. The Great Plains has fulfilled and probably should continue to fulfill its traditional part in American agriculture—that of being the most elastic and yet unpredictable factor in crop production.

Mechanization has brought a change in the cost structure for both crop and livestock production. A higher proportion of costs now require cash outlays. Increased expenditures for fuel, machinery purchases and repairs, are associated with lower labor requirements. With mechanization, cash costs have become rigid under a given scale of output.[5]

Policy and Program

What is required of a farm program to increase the efficiency of Great Plains agriculture? First, the program must be consistent with the need for production adjustments and flexibility in land use to reach a level of efficient resource utilization. It must not freeze the production pattern in any area. It must encourage shifts in production which will prevent the accumulation of "burdensome surpluses." Second, the program must be one that will increase the stability of production and marketing operations through adapted programs of storage, credit, crop insurance, taxation, and income supports.

Production adjustments. In Brannan's original testimony he stated that "the program I have presented is designed to raise the effi-

is as follows: 1945— 667,184 acres
1946— 858,572 acres
1947—1,335,956 acres
1948—1,469,926 acres

See R. I. Throckmorton, "Report of Conditions in the Great Plains as of July 10, 1948," *Proceedings of the Great Plains Council* for July 29, 30, 31, 1948 (mimeographed), pp. 34–39.

[5] If output is allowed to vary, the cost structure may be more flexible in certain respects than it was prior to mechanization. Evidence is accumulating which indicates that reasonably accurate yield forecasts can be made about the time of seeding which may encourage farmers to alter their scale of operations on a year to year basis to a greater degree than was profitable in former years. See A. L. Hallsted and O. R. Mathews, *Soil Moisture and Winter Wheat with Suggestions for Abandonment*, Kansas Agricultural Experiment Station Bulletin No. 273 (1936) and Ray F. Pengra, "Crop Production in the Semi-arid Regions and Insurable Risk," this *Journal* XXIX (1947), 567–70.

ciency with which resources are used in agriculture." In regard to adjusting agricultural production he said "careful consideration must be given to providing a combination of production and marketing adjustment measures to balance supplies with demand. . . . Marketing quotas and acreage allotments should continue to be available or be provided for such commodities as tobacco, cotton, wheat, rice, corn, and peanuts, with improvements based on experience . . . acreage allotments and marketing quotas should be available for use on other feed grains. . . . The legislation should provide for acreage allotments, marketing quotas and marketing agreements and orders for fruits, vegetables, and tree nuts. . . . The time may come when marketing quotas or similar feasible devices may be desirable for meat animals, dairy products, poultry and eggs, although the need for improving the diets of consumers and for encouraging conservation farming would not so dictate at this time. . . . Eligibility of a producer for participation in the benefits of any price support program should be conditioned on compliance with or adoption of applicable programs of production adjustment, marketing quotas or agreements, and the carrying out of reasonable conservation practice requirements."

Would such a program lead to efficient resource utilization in the Plains? If these regulations are to be the major factors controlling production decisions the answer must be largely in the negative. Administrative controls imposed on acreage would delay the needed adjustments and would destroy the flexibility required for efficient resource utilization. If wheat prices, for example, are maintained by production controls above some point of "normal" market equilibrium and if acreage cuts are made percentage-wise as in the case of the AAA, this would take good land out of production as well as leave land in wheat production which would be submarginal for wheat at the "normal" market equilibrium price. If these regulations are only for standby purposes for emergency use their adverse effect on the efficiency of resource utilization should not be great.

How would Brannan's program lead to shifts in production which will prevent the accumulation of "burdensome surpluses"? The program places emphasis on two price techniques: (1) price supports for storables, and (2) production payments for non-storables. The storables of the Plains are mainly wheat and the feed grains. Commodity loans and purchase agreements, if tied closely to an historical base, might bring the very thing which broke the Farm Board

and which was about to break the price support of the CCC in 1942 before the development of the wheat feeding subsidy program. Apparently in Brannan's plan, wheat prices would be held at some relatively high level regardless of world wheat conditions, of the price existing for hogs and cattle, or of the supply and carryover of wheat and other grains. Wheat could only move into world markets and feed uses with the help of government subsidies. Domestic human consumption of wheat is about half or less than half of the wheat marketed during the past three or four years. While Great Plains wheat farmers probably would like to see wheat prices stabilized at 90 to 100 percent of "parity," it is equally obvious that this is the major thing that cannot be done without some combination of drastic marketing quotas, plus consumption, feeding, and export subsidies.

To the extent that the Agricultural Act of 1948 allows greater price flexibility than the Brannan proposal, it would bring about production adjustments with less administrative control than would be required in the use of Brannan's plan. As a vehicle to achieve optimum resource utilization the price flexibility of the 1948 act is to be preferred; but Brannan's plan should provide a higher level of income and greater income stability. The more desirable feature of each might be contained in a law which provides (1) price flexibility with certainty through forward prices and (2) income stability through direct income payments based on the general index of agricultural purchasing power.

The use of price supports on the basis of whether the products are storable or non-storable would result in greater price certainty for feed-wheat and other feed grains than for livestock; which may cause a shift away from the livestock economy.[6] Rigid price supports for grains without corresponding and consistent price guarantees for the end products may make feeding operations unprofitable in certain short run periods. A sporadic type of livestock feeding operations might result.

[6] Because of changes in political complexion, the success of such a program to encourage expansion of the livestock industry may depend on the farm operators' confidence in the Government's fulfilling its commitment to make production payments on livestock and livestock products which offset the feed purchased or produced at high support prices. Many operators had their confidence severely shaken by the unfortunate "30-cent situation" in connection with wheat for foreign shipment in early 1946. Continually changing OPA rules on meat prices and rationing during the war always seemed to the feeder to come after he'd made his purchases of feeders but before he'd sold them. Many feeders became conservative in their operations to reduce their loss potential under this unpredictable market factor.

The support prices proposed by Brannan would depend on historic patterns and after the program had been in operation for a decade or more the level of price support would be based on the previous level of administered prices. In the Plains, where shifts in land use are rapid, price certainty would appear to have a greater effect on the efficiency of resource utilization than in areas where land use patterns are less changeable. It seems important, therefore, that the elements of price certainty which are written into the program should be flexible enough to facilitate shifts in resource utilization in line with market demand. This presents a strong argument for a forward pricing system for all the major marketable products of the Plains.

Conservation. The emphasis which Brannan places on conservation is properly placed but it is unlikely that significant advances in conservation will come through an acreage control program. Rather they should come through farmer-education services and if this does not achieve the degree of conservation considered desirable resort should be made to soil conservation payments for stated operations or practices.

Storage. There is a strong case for storage operations to stabilize the supply of feed grains. The wholesale liquidation of livestock from the Plains region during the drouth of the 1930's is well known. In many cases livestock were sold in extremely poor condition; and in some cases liquidation cut heavily into the foundation breeding herd. Periods of drouth varying in intensity and duration may be expected to recur. What kind of price-storage policy is desirable to provide a cushion against this sort of thing? It appears to be a policy which will permit storage stocks to accumulate during years of good crops and which will encourage their use as feed during years of poor crops. The maximum limit of these stocks as determined by the storage capacity available should be two or three times the current storage capacity in the Plains. This means that farm storage facilities should be expanded especially and that policy for storables should emphasize their use as an intermediate product. Brannan's emphasis on increases in storage capacity seems particularly applicable to the Plains; but in carrying out this policy, stable feed supplies rather than price support should be the major goal.

Credit policy. A basic weakness inherent in the Great Plains settlement pattern—inadequate land resources in the farm unit—

might be corrected in part through credit policy. In recent years some units have increased toward the upper limit for family sized farms due to reinvestment of a large volume of savings. If this trend is considered desirable, to obtain increased efficiency in production, it could be accelerated by placing less emphasis on the owner's equity and more on potential earning capacity—less emphasis on the existing farm unit and more on the goal of the adjusted farm unit. Brannan's suggestion for an "expansion in the Farmers Home Administration" could strengthen or retard this adjustment depending on the objectives to be followed under the expanded administration.

Adequate sources of credit should be available in bad times as well as in good times. In the past some credit sources have competed wildly in periods of prosperity but have left the Plains farmer flat in periods of crop failure or low prices. These policies, whether intentional or not, have contributed in an important way to the boom-bust situation in the Plains. It may not be too much to require that the governmental agency in the credit field also act as a balance wheel.

Crop insurance. Crop insurance, which Secretary Brannan recommends for expansion, fits into the general resource plan. The question of crop insurance does not appear to be one of policy. Rather it is a problem of developing the correct actuarial structure, as outlined elsewhere.[7] Crop insurance may have the important effect in resource utilization of providing the equivalent of yield certainty. An expanded crop insurance program therefore appears as a necessity in working toward an efficient resource utilization pattern in the Plains.

Income Instability in the Plains

Income instability of the farmer in the Plains arises in the main out of two phenomena: (1) price instability and (2) yield instability. Income instability has been magnified over the past 20 years in the interaction of these two factors since drouth and low prices occurred at the same time in the '30's while bumper crops and high prices have been experienced simultaneously since about 1941 (Table II). These combinations have resulted in a greater aggregate income and in greater variability in income over the

[7] See "The Actuarial Structures for Crop Insurance," this *Journal*, XXXI: 2, 418–443.

20-year period than would have occurred if the highs and the lows in prices and in yields had been in some other combination.

TABLE II. AVERAGE CASH RECEIPTS PER FARM IN THE GREAT PLAINS STATES

State	1925	1930	1935	1940	1945
	(*Dollars*)	(*Dollars*)	(*Dollars*)	(*Dollars*)	(*Dollars*)
Montana	2,830	2,020	1,986	2,307	6,899
N. Dakota	3,665	1,908	898	1,718	6,801
Wyoming	3,228	2,880	2,208	3,381	7,489
S. Dakota	3,039	2,301	916	1,649	6,189
Colorado	3,186	2,881	1,625	2,506	7,181
Nebraska	3,483	3,155	1,567	1,853	6,573
Kansas	2,804	2,348	1,380	1,565	5,604
Oklahoma	1,762	897	747	1,052	2,782
New Mexico	1,572	1,586	898	1,687	4,033
Texas	1,653	1,069	831	1,221	3,309
All States	2,346	1,690	1,069	1,502	4,655
(Livestock & Products)	(1,092)	(983)	(632)	(893)	(2,505)
(Crops)	(1,254)	(707)	(437)	(609)	(2,150)

Source: Cash Receipts From Farming; Bureau of Agricultural Economics, Washington, D.C. (Mimeographed), January 1946.

The income instability of the operator in the Plains varies by type of farm or ranch. All operators are affected by market-price changes but the production stability of the three main types of agriculture—dry-land crops, ranching, and irrigated farming—is markedly different. The dry-land farmer and secondly the rancher are most vulnerable to changing weather conditions whereas the irrigation farmer is the least vulnerable, especially where water supplies are adequate.[8]

Policy and Program

If income instability is to be reduced two elements must come into the picture. (1) A type of crop insurance must be developed which can be effective in dry-land and ranching operations. (2) Price stability must be increased or compensatory price payments must be made to counteract some of the price instability. But such payments should be made on the basis of average sales over a

[8] The rancher's gross income fluctuates less than that of the dry-land farmer (1) because wheat and other grain crops usually are more sensitive in response to variations in the seasonal distribution of rainfall and to small differences in total precipitation than is range grass; and (2) because a dry year is a time of liquidation for the rancher, a wet year is a time for building up his herds, whereas the dry-land farmer who normally has a poor crop in a dry year may have little to sell in such a year. In a season of crop failure a wheat farmer also has to replace his seed.

period of years, rather than on the sales of the current year as under Brannan's proposal, to avoid adding to the income instability caused by variable crop production.

In periods of low agricultural income it is not clear whether agriculture faces a short run cyclical disequilibrium or a long-run secular income disparity. If it is the former the compensatory price payments of the low price years could be balanced by taxes in the higher price years. In the Plains, especially in case of some of the farmers with higher incomes, the assessment of the personal income tax on the peak incomes of some of the past few years may actually work in such a manner. It might be possible to go further in this direction by applying the withholding feature of the general income tax to farm product sales.[9] Perhaps this might be supplemented with an additional tax which would be levied only in years of high prices.[10] It is not clear how far society should go in this direction but at least payments such as Brannan proposes could be defended more effectively if a definite policy is formulated along these lines.

Real Income and Social Welfare in the Plains

Real incomes of farm families in the Plains differ greatly. Gross incomes in any one year cover wide ranges (Table III). In addition to the wide differences in gross incomes, there is lack of

TABLE III. DISTRIBUTION OF FARMS IN THE GREAT PLAINS STATES ACCORDING TO GROSS RECEIPTS

Gross receipts (Dollars)	1930		1940		1945	
	Number	Percent	Number	Percent	Number	Percent
0– 2,499	937,208	71.0	1,020,260	87.7	600,509	56.2
2,500– 5,999	250,979	19.0	104,297	9.0	287,393	26.9
6,000– 9,999	43,727	3.3	18,056	1.5	103,458	9.7
10,000–19,999	19,054	1.4	9,546	.8	54,660	5.1
20,000 and over	8,233	.6	4,808	.4	21,821	2.0
Unclassified	61,652	4.7	6,729	.6	1,235	.1
Totals	1,320,853	100.0	1,163,696	100.0	1,069,076	100.0

Source: United States Census of Agriculture, 1930, 1940 and 1945.

[9] See Harold G. Halcrow, "Farm Price, Production, and Income Policy," *Proceedings of the Western Farm Economics Association*, 1948, p. 41 and "Analyzing the Tax Load of Agriculture—Discussion," this *Journal*, XXXI: No. 1, Part 2, 680–81.

[10] Cf. Geoffrey S. Shepherd, "A Farm Income Stabilization Program Could Be Self-Financing," this *Journal*, XXX 142–50.

uniformity in the availability and adequacy of public services. Some families are located on all-weather highways close to good schools and large markets, while others are relatively isolated. About half the farms and ranches in the Plains are served by central station electricity. The combination of home and public facilities that may be available to the family in the Plains differs considerably from home to home and from area to area. Some of these differences may be justified on the grounds of just rewards for good management, hard work, and savings; but not all of them can be justified on these or on any other grounds.

Policy and Program

How can real income be expanded and how can a greater social welfare be achieved in the Plains? In focusing attention on aggrega'e income the question of expanding real income and of increasing social welfare may be overshadowed. Production payments as well as price supports tend to help farmers in direct proportion to their level of output, thus favoring the farmers who already have achieved a reasonably good income position. The problem of rural poverty—in the Plains or elsewhere—cannot be solved alone by price policy, credit, or income payments. These devices may hinder rather than promote the necessary mobility for an expanding real income and greater social welfare. A credit policy with the objective of developing "economic" family farm units, more help for rural education, improved rural health facilities, expanded nutrition and housing programs, more Federal help in providing all-weather farm to market roads, an expansion in rural electrification facilities—all these should receive greater emphasis.

In his concluding remarks Brannan recognized the need for "a program for job training and placement and some definite means of encouraging the development of industries in underdeveloped areas . . . the conservation of agricultural resources . . . an expanded soil-conservation program . . . community services such as electrical and telephone services and health and educational facilities . . . research and education in agriculture and home economics . . . cooperation credit . . . the school lunch program . . . ." Also Brannan recognized that his price support program "falls short of meeting the needs of those operators who lack enough good land and enough capital to produce the necessary volume with the necessary efficiency for a good living . . . ."

What appears to be called for in the Plains is an expansion especially among the medium and smaller family farms to overcome their land deficiency. In fact it appears conclusive that the only way to achieve a higher real income and greater social welfare among the farm families of the Plains is to increase the mobility of the excess labor resources and to provide employment for these people through industrial development. If this is achieved, the aggregate "cost" of the program to the taxpayer—which is the subject getting the headlines—could be reduced to a minimum in the long run and yet farm families, except the most isolated, could achieve a parity of real income. In the meantime two things should be emphasized. (1) The transition from the war to the peacetime economy should be undertaken with income supports which increase rather than restrict the mobility of labor. (2) The shift toward optimum resource utilization, which is still progressing in the Plains, can be made most easily if administrative controls over acreage and output are reduced to a minimum. In this manner, agriculture in the Plains may achieve a real parity income without looking forward to a long era of production payments.

HIGH LEVEL SUPPORT PRICES AND CORN BELT AGRICULTURE

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IF ANY benefits are to accrue to American agriculture as a result of a farm program similar to that advanced by Secretary Brannan in April of this year, the Corn Belt is in a position to command a large proportion of the benefits.[1] The Corn Belt had something less than 20 percent of the farm population in 1945, and sold roughly 28 percent of the total farm marketings in 1947 and 1948.[2] With 18 percent of the agricultural labor force, the six states produced 27 percent of the total agricultural income in 1945.[3]

Any program that will increase farm income by increasing prices will have a "favorable" impact upon a commercial agriculture with a relatively high productivity per labor input.

The economic effects of the Brannan proposals may be considered under two heads—resource effects and income effects. Since part of the resource effects will depend upon the income effects, I shall consider the latter first.

Income Effects

The income effects of the Brannan proposals will depend upon the relation between the support levels and the levels that would otherwise prevail in the market. If market prices should be above the support prices, the main impact of the program would be to reduce price uncertainty. I believe this would make the income distribution within agriculture somewhat more equal. The small farmers are subject to a greater degree of capital rationing and are in general somewhat less venturesome. This would make it possible for them to expand the quantity of resources at their command to a somewhat greater extent than the farmers with larger firms.

But I cannot believe that a ten-year moving average of prices, adjusted by the purchasing power of farm marketings, would almost exactly reflect the equilibrium prices for farm products. No

[1] The Corn Belt, as I view it, includes the eastern portions of Kansas, Nebraska, and South Dakota, the southern half of Minnesota, the northern half of Missouri, and all of Iowa, Illinois, Indiana, and Ohio. However, my analysis is based on data for the six states: Minnesota, Missouri, Iowa, Illinois, Indiana, and Ohio.

[2] BAE, *Net Farm Income Situation*, Jan, 1949, p. 6.

[3] *Ibid.*, July, 1946, p. 18.

one will question that individual product prices will depart from the prices indicated by such a formula. It is also unlikely that the average level of market prices will approximate the average level indicated by the formula. I would guess that after the current heavy export demand for U. S. food subsides to roughly its pre-war aggregate quantity level, farm prices will be at least 15 percent below the average suggested by Brannan's formula.[4]

How will the income benefits from the Brannan proposals be distributed? Given our general values with reference to income equality, we would like to have the plan make incomes more equal than is now the case. At least this is the criterion I shall use—the plan should reduce the inequality in distribution of income. Three comparisons will be made: (1) within the Corn Belt; (2) between the Corn Belt and other agricultural areas; and (3) between the Corn Belt agriculture and non-agriculture. In general it does not seem that the subsidies will make the distribution of income more equal than it would otherwise be.

The Brannan proposals will have the same effect upon the distribution of income within agriculture as a price increase for farm products.[5] If the Brannan program results in a 10 percent

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[4] The data on food consumption and relative food prices indicate a gradual yet perceptible decline in the demand for food at retail, With a decline in per capita consumption of about four percent, relative food prices have fallen since 1947. Part of this decline may be temporary, but it is unlikely that retail food prices will be as high in 1949 as they were in 1947. The demand for food from farmers has declined by more than the demand for food at retail. This is as one would expect. Marketing costs have been rising and are not expected to decline. Consequently all changes in food prices at retail will be reflected twice over at the farm level. The parity ratio was 106 for the first quarter of 1949—roughly the level indicated by Brannan's proposal.

We should also consider what has been happening on the food production and utilization side. In 1935–39, exports constituted 2.5 percent of the 1935–39 food utilization. In 1949 it is estimated that military (which includes food for American armed forces) and shipments and exports will require 12.3 percent of the 1935–39 food utilization. Making some allowance for U. S. armed forces personnel, a return to the prewar level of exports would permit about a seven percent per capita increase in consumption from a given level of production. If food production should rise to 140 percent of 1935–39, per capita food consumption could go as high as 118–120, even if exports are twice the 1935–39 quantity.

In any case, it is difficult to visualize a fall in relative food prices at retail of less than 10 percent (from 132 to 119–120) over the next few years. If this occurs, farm prices will fall by about 20 percent (from 262 to 210 if other prices remain constant) giving a parity ratio of roughly 85 percent.

[5] We do not have empirical data that show exactly what happens to income distribution when only the prices of agricultural products change. Most pertinent data seem to be those showing the distribution of net money incomes of farm families in 1941 and 1947. A rough measure of changes in income distribution between the two periods is the percentage of families having two or more times the median income, and having half or less than the median income. In 1941, 21 percent had an income

increase in farm prices and farm price returns, the income distribution effects within agriculture will be equivalent to a 10 percent increase in farm prices in the market place. If production controls and marketing quotas are imposed upon individual farms in terms of historical bases, the above conclusions would not require substantial modification.

The above comments can be made more vivid by indicating in a rough way how the Brannan proposals would affect the distribution of income. This will be done by showing the final incidence of the subsidy by broad income or size groups of farms.

The following assumptions will be made:

1. Price returns are increased (by the proposals) by 10 percent on all products sold.
2. The distribution of income from sales of farm products is the same as reported by the Census for 1944, and the level of prices without the Brannan proposals would be those prevailing in 1944.
3. The Census classification of farms in Classes I to VII by size, degree of commercialization, and extent of dependence upon agriculture represents a meaningful classification of income groups.
4. Only part of the gross subsidy will be retained by the farmer actually receiving it. Prices paid for factors will be higher because of the subsidy. Class I farms will retain 45 percent; Class II and III, 50 percent; and Class IV and other classes, 55 percent.
5. There is no upper limit on the amount of production payments per farm.[6]

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two or more times the median, while in 1947, 20 percent fell in this group. In 1941, 27 percent had half or less than the median income; in 1947, the percentage was 25 percent. (The medians were $800 in 1941 and $1963 in 1947). These data would seem to indicate that within agriculture, rising prices increased the incomes of income groups in about the same proportions. Since income earning opportunities off the farm improved, it is not unlikely that higher farm prices—nonfarm wages and job opportunities unchanged—would make the distribution of farm income relatively more unequal. The upper income groups receive a much greater absolute increase in real income than the lower income groups, of course.

Sources of data: *Statistical Abstract, 1947*, pp. 274; and Bureau of Census, Series P-60, No. 5, p. 16.

[6] Laudable as the objective of fostering the family size farm may be, Secretary Brannan's proposal of limiting the benefit of his program to a total of 1,800 units is hardly workable. Since the price of some products would be maintained in the market-place—corn, wheat, and cotton—farmers specializing in these products would get the full benefit from the proposals. Brannan's proposals would discriminate against large-scale producers of perishable products as compared to the large-scale producers of durable products.

Table I indicates the effects of the proposals on net operator incomes in the Corn Belt. The net subsidy per farm operator on Class II farms—large family farms—is roughly 12 times what it

TABLE I. DISTRIBUTION AMONG FARM OPERATORS OF NET SUBSIDY RESULTING FROM AN INCREASE OF 10 PERCENT IN FARM PRICE RETURNS[a]
(Based on 1944 Gross Income Distribution)

State and farm class[b]	No. of farms	Farm population	Gross subsidy (millions)	Net subsidy (millions)	Net subsidy per farm	Average value of products sold or used
1	2	3	4	5	6	7
Iowa						
I	6,366	40,190	$20.4	$ 9.2	$1,445	$32,768
II	49,297	223,031	48.6	24.3	493	10,349
III	87,225	334,538	39.9	20.0	229	5,004
IV	39,804	132,082	6.8	3.7	93	2,021
VI	9,019	25,439	.5	.3	33	829
Illinois						
I	8,309	57,560	22.0	9.9	1,191	26,979
II	44,245	200,057	40.4	20.2	457	9,522
III	55,724	213,634	24.8	12.4	223	4,808
IV	40,648	133,573	6.6	3.6	89	1,911
VI	16,489	48,062	1.0	.6	36	823
Ohio						
I	1,573	16,800	5.5	2.5	1,589	35,606
II	13,164	76,796	12.7	6.4	486	10,098
III	53,256	230,990	23.1	11.6	218	4,696
IV	54,915	201,891	9.1	4.6	84	1,945
VI	23,074	69,129	1.4	0.8	33	833
Indiana						
I	1,888	17,551	6.1	2.7	1,430	33,792
II	15,100	81,593	14.5	7.3	483	9,998
III	45,109	186,079	19.3	9.7	215	4,606
IV	47,461	167,823	7.6	3.8	80	1,881
VI	17,102	51,415	1.0	.6	35	808
Missouri						
I	1,569	14,101	6.4	2.9	1,848	41,229
II	9,244	46,073	9.2	4.6	498	10,450
III	46,375	190,595	18.8	9.4	203	4,474
IV	84,946	307,787	12.8	7.0	82	1,874
VI	40,319	123,846	2.2	1.2	30	831
Minnesota						
I	1,351	9,215	4.8	2.2	1,628	36,174
II	15,464	78,622	15.1	7.6	492	10,325
III	77,194	338,864	33.0	16.6	214	4,770
IV	56,429	205,527	9.6	5.3	94	2,053
VI	12,907	37,556	7.9	4.3	33	846

[a] Data from United States Census of Agriculture, 1945, *Special Report, 1945 Census of Agriculture*, Table 29.

[b] Farm Class defined in *Ibid.*, p. 16.

Class I—Large-scale commercial farms—generally with a value of products in excess of $20,000. Some farms with a value of land and buildings in excess of $70,000, and a value of products of $8,000–$19,999 were included.

is for Class VI farms—family subsistence farms.[7] The operator on Class II farms would receive roughly five times as much as the Class IV farm operator—small-scale family commercial farms.

TABLE II. AVERAGE SUBSIDY PER FARM FOR OPERATORS IN CLASSES I, II, III, IV, AND VI FOR CERTAIN STATES

	No. of farms in Groups I, II, III, IV, and VI	Total net subsidy to Groups I, II, III, IV, & VI (millions of dollars)	Net subsidy to farm operator for the groups (dollars)
Mississippi	212,969	14.6	69
Alabama	151,991	10.8	71
West Virginia	37,700	3.0	80
South Carolina	108,790	9.7	89
Georgia	170,818	15.4	90
Louisiana	94,095	9.0	96
North Carolina	223,220	24.9	117
Missouri	182,453	25.1	138
Texas	271,930	48.5	178
Indiana	126,660	24.1	190
Minnesota	163,345	35.9	220
Ohio	145,982	32.8	225
New York	101,198	25.0	247
North Dakota	66,669	18.3	274
Kansas	120,865	33.6	278
Illinois	165,415	46.7	282
Massachusetts	19,644	5.6	285
Florida	39,244	11.4	291
Iowa	191,711	57.5	300
Colorado	36,942	12.2	330
California	105,235	66.4	631

Source: Calculated from U. S. Census of Agriculture, *Special Report, 1945 Census of Agriculture*, Table 29.

Given the greater proportion home consumption on small as compared to large farms, relative real incomes will probably be increased by the same or greater proportion on the large farms.

Table II shows the estimated average net operator subsidy for the U. S. and selected states. As one would anticipate, the states

Class II—Large-scale family commercial farms—generally with a value of products of $8,000–$19,999.

Class III—Moderate-scale family commercial farms—generally with a value of products of $3,000–$7,999.

Class IV—Small-scale family commercial farms—generally with a value of products of $1,200–$2,999.

Class VI—Family subsistence farms—farms with a value of products of $500 to $1,999, a value of land and buildings of less than $8,000, and the farm operator working off the farm less than 100 days in 1944.

[7] Farms in class II would not be affected by the upper limit referred to in the previous footnote.

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with high incomes receive the most. Iowa farm operators dependent upon agriculture for their livelihood would receive more than four times as much as Mississippi farmers; California farmers would receive nine times as much. In general, the Corn Belt would receive much more per farm than the U. S. average.

Would the Brannan proposals reduce any "inequities" in the distribution of income between Corn Belt farm families and families not dependent upon agriculture? There is no evidence to indicate that the farm operator families in the Corn Belt that would receive the bulk of the benefits from the Brannan proposals have had smaller incomes than comparable non-farm families during the last several years.

TABLE III. AVERAGE FARM LABOR INCOME ON ALL FARMS AND SALES NUMBER AND POPULATION OF FARMS IN CLASSES I TO IV AS PERCENT OF THE TOTAL FOR CORN BELT STATES

	Average farm labor income, 1945[a]	Sales of Classes I–IV as percent of total sales, 1944[b]	Number of farms in Classes I–IV as percent of total, 1944[b]	Farm population in Classes I–IV as percent of total, 1944[b]
Iowa	2,320	99.2	87	90.7
Illinois	1,850	98.0	73	78.3
Minnesota	1,640	97.9	80	85.0
Indiana	1,380	96.0	62	67.6
Missouri	1,290	93.6	56	64.7
Ohio	1,270	94.9	56	61.6

[a] Estimate made by author. Data estimate annual average labor income per worker on all farms, not just for farms in Classes I–IV.

[b] *Census of agriculture, 1945, Special Report of 1945 Sample Census of Agriculture*, Table 29.

It seems that the Brannan proposals might well result in net farm incomes slightly in excess of the 1945 dollar level of $16.9 billion implicit in the estimates in Table III.[8] Farm marketings valued at 26.2 billion dollars might result in a net agricultural income of 16.5–17.0 billions, assuming the same level of production expenses as in 1948.[9] Actually, production expenses would fall below

[8] These estimates are based upon data given in *The Farm Income Situation*, July, 1946. The national estimates of income and expenses were later revised, but no new state estimates have been provided. On a national basis, the final realized net income from agriculture was 16.3 billion dollars, or 0.6 billion dollars less than indicated above.

[9] In 1950, Secretary Brannan estimates, the income support level would be roughly 26.2 billion dollars. One might assume that if all prices were at the calculated support level, the cash value of farm marketings in 1950 would be 26.2 billion dollars for a "normal" 1950 crop. But one would be in error in doing this. When

1948 because of the decline in feed and livestock costs implicit in the fall of the value of farm marketings.

As shown in Table I, the bulk of the subsidy will go to farmers in Classes I, II, and III. Assuming that roughly one-half of the gross income is required to meet production expenses, the net average family operator income of the Class III farms in 1944 was roughly $2,200 to $2,500, plus the value of the housing. This average income of the lowest of the three classes might be compared with the median family incomes of various non-farm groups in 1947. The median family income for rural non-farm families was $2,800 in 1947. Families in towns and cities of 2,500 to 49,999 had median incomes of $3,119.[10] There do not seem to be any important differences between the real purchasing power of the incomes being compared.

If only labor income is compared, much the same result is apparent. In 1947, the average wage of employed industrial workers was about $2,500. Table III gives the average labor income for *all labor on all farms* as well as certain other data on farms in Classes I to IV compared to the state as a whole. Even without making any adjustment for the low productivity of the farm labor on Class V, VI, and VII farms, the real income of farm labor in Iowa was in excess of employed industrial workers. It seems safe to assume a difference in purchasing power of 20 to 30 percent.[11] In Illinois, the case also seems to be fairly clearcut—the average real labor income on farms in Classes I to IV would be equal to or in excess of $2,500 based on urban purchasing power.

Some further examination of the Ohio data is required: it is safe to assume that Classes I–IV will have 95 percent of the total labor income and probably not far wrong to assume that 70 percent of

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farm production is rising, the quantity of marketings will be higher in any given year than in the previous 10 years, random fluctuations in output aside. For 1940-49, the average level of farm production for home consumption and sale was about 126. In 1947 this index stood at 137. If the index were 137 in 1950, the price supports implicit in Brannan's proposals, under the assumptions indicated in his speech of April 7, 1949 before the House and Senate Agriculture Committees, would result in cash receipts from farm marketings in excess of 28.5 billion dollars. This is due to the fact that the Brannan proposals use the average level of marketings for the previous decade to arrive at the level of support prices.

[10] Department of Commerce, Bureau of Census, *Current Population Reports*, "Consumer Income," Series P-60, No. 5, p. 15.

[11] See Nathan Koffsky, "Farm and Urban Purchasing Power," in *Studies in Income and Wealth*, Vol. XI, (National Bureau of Economic Research, 1949), pp. 156–178.

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the labor was employed on these farms.[12] This adjustment would give a net labor income somewhat in excess of $1,700. On an urban purchasing power basis this is roughly $2,100 to $2,300. The Missouri and Indiana labor incomes on farms in Classes I to IV would be slightly higher.

There is a real question whether Class IV farms should be included in the calculations. In Ohio, for example, about 77 percent of the total subsidy would go to farms in Classes I, II, and III, while only 17 percent would go to Class IV farms. Yet Class IV farms are 81 percent as numerous as Classes I–III, and have 62 percent as many people living on them. If Class IV farms were eliminated from the calculation of labor incomes, casual observation indicates that the average labor income of the included groups would rise above $2,500, measured in urban purchasing power.

The proposal that we have been analyzing cannot be considered as one furthering income equality in terms of its impacts upon the Corn Belt. Within the Corn Belt, the high income farmers would receive much more than the low income farmers. The relatively well-to-do Corn Belt would receive much more from the program than the poorer agricultural areas. And there is no evidence that the labor on the farms which would receive three-fourths or more of the total subsidy within each state have lower real incomes than individuals of comparable skills in other occupations under the economic circumstances implicit in Secretary Brannan's proposals.

Some comment on the functional distribution of income is in order. In the short run, one might anticipate that the broad factors of production—land, labor, and capital—would gain in roughly the same proportion and by perhaps slightly more than the increase in gross agricultural income. In the longer run, it seems likely that the least mobile factor (most inelastic supply) would gain the most. In the case of Corn Belt agriculture, this would be land. This will mean that a disproportionally large part of the subsidy would go to current owners of land. And I can think of no good reason why the present owners of land should be so aided.

Resource Effects

It was argued earlier that the Brannan proposals would result in

[12] The 1945 Census of Agriculture does not estimate labor use by value of product groups or by the Classes used here. Estimate for Ohio is a rough estimate based on data on population and cash wages paid and data for East North Central States from the 1940 Census of Agriculture.

support prices at least 10 percent—perhaps 20 percent—higher than the market prices would be. Presumably this would be true only for a time; in seven or eight years the formula should catch up. But will it? I don't believe so, if the Brananan program is carried out to guarantee 100 percent of the support standard. Not only will the formula not catch up, but in the process of "trying to catch up" it will result in a serious misuse of agricultural resources in the Corn Belt.

The most important relative agricultural prices in the Corn Belt are the feed-livestock ratios. Next most important are the ratios of one livestock product to another. This discussion will be limited to the former.

Secretary Brannan wishes to support the main feed grains, particularly corn, by the use of loans and purchase agreements. Assuming sufficient storage space is available, the support price for corn will thus change in response to only one factor—change in the index of prices paid.[13] Changes in the demand for or supply of corn will not affect its market price and consequently cannot affect its price support level. This is hardly what one would expect in a formula that "will keep price relationships among commodities on a moving, up-to-date basis."

There is no easy answer to this basic dilemma of using supported prices in a formula to determine the level of future support prices. One might argue that production payments on corn is the answer. In one sense it is. If production payments were made on corn, stocks would not accumulate, but two other things would happen. The corn farmer would get the benefit of two subsidies on his corn, and the cost to the government would be very high indeed. If there were no storage program for corn, the price of corn (for an average crop) would reflect the support prices of the livestock prices. This would keep the market price of corn high and there would be only a gradual diminution in the support price for corn. Under the assumptions we have made, however, during the first decade or more of the program, corn producers would receive the benefit of the subsidy to livestock directly in the demand for corn, thus maintaining the market price of corn for insertion in the formula, and a subsidy to make up the (small) difference between the market price and the support price.

[13] This is a slight understatement. If the quantity of farm products marketed is changing through time, the "multiplier" in the formula will be changed slightly.

I can but conclude that one of the worst features of the Brannan proposals is the method of calculating support prices. This method, when combined with the high level of supports, is completely unworkable if the criterion of economic efficiency is given any consideration. The formula used for calculating relative support prices is workable—and then only in a limited sense of the word—if the support prices are almost always below market prices. The above argument is in addition to any consideration of the effects of using price relationships for the past 10 years as a guide to future production.

The Corn Belt has achieved a relatively favorable resource position. There does not appear to be any considerable excess of resources. The Brannan proposal, if operated over a period of years, would only result in worsening the resource position. It would encourage resources to stay in agriculture which might otherwise find employment elsewhere. If a depression should come or the Brannan program fall into disrepute and be abandoned, the Corn Belt agriculture would find itself with excess resources that should have found employment elsewhere. Farm incomes would then be lower than would otherwise be the case.

The attraction of additional resources into Corn Belt agriculture could be avoided only by stringent production controls. If the production controls were really effective, then much of the income transfer to agriculture would result in higher land prices. A significant subsidy to the present land owners would occur. Is this a group warranting an income grant?

General Criticisms

Anyone familiar with the Corn Belt and the other prosperous areas of agriculture must seriously question the need for any scheme designed to maintain farm prices above "free" market levels during periods of high levels of employment in the economy. What objective does such a program achieve? It obviously worsens resource use by stemming the desirable resource adjustments that such areas as the Corn Belt are capable of making when resources are fully employed in the economy. *Do we, as a nation, wish to say that everyone employed in agriculture in 1949 is entitled to roughly the same real income as he earned from 1940 through 1949 and that he is to be permitted to earn that income in agriculture?* Unless we as a nation wish to restrict entry into agriculture, we will also try to

give anyone who wishes to engage in agriculture an economic opportunity of the same sort. In permitting entry, most of the income gains of those in agriculture when the program started would be dissipated, except in the case of land owners.

The most serious limitation of the program is its failure to tackle the problem of poverty. Despite the generally high level of incomes in the Corn Belt, there are tens of thousands of farm families with relatively meager incomes. Not only does a high level support price program fail to meet the needs of low income families, but the cost of the program is likely to be so great that it will preclude Congress' taking any action to meet the problems presented by low incomes in agriculture.

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NOTES

RETAIL VALUE OF MEAT CONSUMPTION RELATIVE TO CONSUMERS' INCOMES AS A MEASURE OF DEMAND FOR MEAT

IN THE art of presenting economic facts, there is merit to devices that simplify complex subjects. A method for illustrating fluctuations in demand for meat has gained some acceptance in the field of livestock commodity analysis because it qualifies as a useful simplification of a difficult concept. The method requires only two statistical series—the calculated retail value of all meat consumed and disposable personal incomes. It is much more easily presented than multiple correlation analysis, to which it is akin. It admittedly has a weakness in that all subtleties in its construction and meaning are disregarded. However, this may not be such a harsh criticism, for if all methods of presentation having no deficiency were to be eliminated, economists would be crippled indeed in their task of generalizing in an understandable way on economic events.

Explanation of Method

The retail value of meat consumption is simply the product of the retail weight of consumption multiplied by the average retail price. It is first worked out for each of the four meats. Consumption of each meat by the civilian population is officially estimated by the United States Department of Agriculture. For the purpose here, it is expressed in per capita terms. It is also converted to a retail weight, by means of standard percentage factors which approximate the difference between retail weight and the carcass equivalent (wholesale) weight in which original consumption data are published. The average retail price of each meat is the estimated composite average price for all products as computed by the Bureau of Agricultural Economics from the retail prices by cuts reported monthly by the United States Bureau of Labor Statistics.

The retail value of meat consumption is an imputed valuation rather than a measure of consumers' expenditures for meat. Much meat is consumed at other than the urban retail prices reported by BLS. That consumed by institutions and the military services generally moves at less than a retail price. Hotels and restaurants also buy their meat at prices lower than retail, but their clientele in reality consumes meat at prices per pound that are far higher than

retail prices. The average price of meat bought by rural consumers may be somewhat different from the urban retail price. There are many additional examples of consumption of meat purchased at other than urban retail prices.

The disposable incomes of consumers is a series issued by the United States Department of Commerce. It relates to all personal incomes as corrected for immediate tax obligations. Incomes also are converted to per capita values.

Comparisons of retail value of meat with consumers' incomes have been made for annual data beginning 1913, and for quarterly data beginning 1947. Quarterly calculations employ a seasonal correction for all basic quarterly data—price and consumption of meats, and disposable income. Quarterly comparisons make possible a nearly up-to-date commentary on changes in demand for meat; their usefulness is believed to outweigh the possibility of more error due to the factored corrections for seasonal variations. Indexes of seasonality in consumption and price of meat are only approximate.

Current Results

During the interwar (1922–41) period, retail value of meat consumption averaged about 5.6 percent of disposable personal income. This percentage was exceeded somewhat in the early 1930's especially in the drought years, but in 1941 it dropped to 4.9 percent (Table I). Low prices for pork were the main factor in the low percentage of 1940–41. Comparisons of retail values for the war years have little meaning but the high percentages just after the war—6.3 in 1947 and 6.1 in 1948—testify to the high prices for meat in those years, even in relation to the record-high incomes of consumers. Quarterly data indicate that in the second quarter of 1948, the percentage rose to 6.5. But in the fall months of the year, prices of meats and of livestock fell rapidly. These price declines were greater than can be accounted for by the increase in production or by any seasonal factors. The percentage ratio of the value of meat consumption to incomes slipped to 5.6 percent in the fourth quarter of 1948. In the first quarter of 1949, when prices of meat gradually steadied, the percentage dropped off 0.2 points more, to 5.4. This is 10 percent below the index for the first quarter of 1948. Preliminary data indicate a small increase in the second quarter of this year.

TABLE I. RETAIL VALUE OF MEAT CONSUMED COMPARED WITH DISPOSABLE PERSONAL INCOME BY YEARS, 1925–48, BY QUARTER YEARS 1947–49

Year	Average retail price of meat per pound[1]	Retail value of meat consumed per person[2]		Disposable personal income per person[3]		Retail value of meat as percentage of disposable income
		Value	Index numbers, 1935–39=100	Actual	Index numbers, 1935–39=100	
	Cents	*Dollars*	*Percent*	*Dollars*	*Percent*	*Percent*
1925	30.0	36.3	124.7	627	123	5.8
1926	31.1	36.9	126.8	641	126	5.8
1927	30.5	35.6	122.3	635	125	5.6
1928	31.5	36.1	124.1	644	126	5.6
1929	32.7	37.3	128.2	673	132	5.5
1930	30.8	34.6	118.9	595	117	5.8
1931	25.6	29.1	100.0	505	99	5.8
1932	19.5	22.3	76.6	381	75	5.9
1933	17.5	20.7	71.1	358	70	5.8
1934	20.9	25.9	89.0	406	80	6.4
1935	28.0	28.2	96.8	453	89	6.2
1936	26.7	29.8	102.3	513	101	5.8
1937	28.9	31.3	107.5	549	108	5.7
1938	25.5	27.9	95.8	501	98	5.6
1939	24.6	28.4	97.6	533	104	5.3
1940	22.9	28.4	97.6	570	112	5.0
1941	26.8	33.3	114.4	686	135	4.9
1942	31.4	37.9	130.2	858	168	4.4
1943	31.9	40.8	140.2	958	188	4.3
1944	30.2	40.7	139.9	1,048	205	3.9
1945	30.2	37.9	130.2	1,064	209	3.6
1946	38.4	51.4	176.6	1,120	220	4.6
1947	56.2	75.4	259.1	1,198	235	6.3
1948	62.7	79.4	273.2	1,307	256	6.1
1947						
1st quarter..	—	18.0	247.9	295	231	6.1
2nd quarter..	—	19.0	261.0	291	228	6.5
3rd quarter..	—	19.1	262.4	301	236	6.3
4th quarter..	—	19.3	263.7	310	243	6.2
1948						
1st quarter..	—	19.0	261.6	314	246	6.1
2nd quarter..	—	20.9	287.0	323	253	6.5
3rd quarter..	—	20.6	283.0	332	260	6.2
4th quarter..	—	18.9	259.9	336	263	5.6
1949						
1st quarter..	—	17.9	246.5	332	260	5.4

[1] Weighted average of retail prices for all important cuts.

[2] Computed from estimated retail weight of each meat consumed per civilian consumer. Quarterly data seasonally adjusted, with quarterly indexes converted to an annual rate.

[3] Computed from income data of U. S. Dept. of Commerce 1929–49. Estimates for 1925–29 by Bureau of Agricultural Economics. Quarterly data seasonally adjusted.

As data for 1949 are a little below the 20-year average percentage, it might be said that demand for meat is "back to normal." Certain it is that the postwar premium prices have disappeared for meats as completely as for late-model "used" automobiles. Even though present prices of meat in cents per pound are still much higher than those before the war, these comparisons suggest that they are not far out of line with present supplies of meat and incomes of consumers.

Theoretical Significance

Unfortunately for economists, a comparison of retail value of meat with incomes has only limited forecasting value. It depends upon an extraneous factor—the size of consumers' incomes—which is itself hard to estimate. Moreover, percentage ratios to incomes have varied considerably about their average level in the past and may do so again. But in spite of these reservations, the method has a certain restraining function in forecasting, for it makes possible a matching of price forecasts against assumed levels of meat supply and of incomes, to show whether the forecasts imply a constant or a varying demand for meat. Furthermore, it can be extended to an evaluation of market prices of live animals, by use of average wholesale and retail margins, thereby completing a simultaneous examination of prices to farmers for livestock, retail prices of meat, and incomes of consumers.

The current "normal" relationship between value of meat consumption and personal incomes carries no certain assurance for prices of meat and livestock in the immediate future. But as it shows that the 1947–48 premium for meat is now gone, it inspires more confidence about future prices than did the high ratio of 6.5 in the spring of 1948.

A direct comparison of the retail value of meat consumption with consumers' disposable incomes is equivalent to a multiple-correlation analysis of the composite average retail price of meat on the quantity of meat consumed and disposable personal incomes. The corresponding analysis would have fixed lines of regression: that of price to quantity consumed would be curvilinear, with slopes such as would yield a constant value for all quantities of consumption (unit elasticity of demand); and that of price to consumers' incomes would be a straight line of a constant percentage ratio. That these are the built-in relationships is clear from the nature of

the value-and-incomes method. Any particular percentage ratio (e.g., 5.6) that may be considered average or normal carries with it the inexpressed assumptions that retail value would be the same for various sizes and composition of the meat supply, and that consumers as a group tend to allot nearly a constant percentage of their income to meats regardless of the aggregate size of that income.

Correlation analyses for the 1922–41 period result in a regression of retail meat prices on disposable personal income not greatly different from that implied in the retail-value methodology. The regression on meat consumption was somewhat inelastic. Thus their inherent assumption of unit elasticity may cause ratios of retail value to disposable personal income to tend slightly above average when supplies are scarce, and below average when supplies are abundant.

A comparison of retail values and incomes has the character of a regression analysis in another respect. Most regressions have some residual deviations, which are often explained away as caused by factors not included in the analysis. In the retail value comparisons, the deviations or departures from average ratios are brought to the fore and given emphasis. Thus we say that retail values were higher than average in 1948 but about average thus far in 1949. Neither the income device nor a correlation explains *why* prices and values of meat are sometimes high or low relative to incomes; each only brings out the fact of their departure from the average relationships.

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THE WORK OF THE PERMANENT AGRICULTURAL COMMITTEE OF THE INTERNATIONAL LABOUR OFFICE

PERSONS engaged in professional fields of agriculture, as well as farmers themselves, may be interested in a brief statement about the work of the Agricultural Service of the International Labour Office. The focus of attention on the United Nations and some of its new instrumentalities, such as the Food and Agriculture Organization, UNESCO, etc., has tended to obscure the fact that the I.L.O. is not only the oldest international mechanism with a continuous existence, but is still a vital one.

The International Labour Organization[1] was established in 1919, a product of the peace settlement after World War I. It is now one of the agencies of the United Nations. Its objective as phrased by the late John G. Winant, wartime ambassador to the Court of St. James and former director of the International Labour Office, is: "to secure social justice in the nations of the world. . . . In its conception it was based on the assumption that social justice is necessary if we are to look forward to universal peace. . . . "

"The approach of the I.L.O. has been to resolve problems rather than to engage in conflict, and its method is through conference, research, and cooperation."[2]

Although the I.L.O. in its very early period gave some attention to the problems of agricultural labor, its primary concern was with labor in industry. It was not until 1935 that the International Labour Conference approved the formation of a permanent agricultural committee. This committee was organized in 1937 and held its first session at Geneva in February, 1938.[3] Following the usual pattern of I.L.O. committees, it consisted of representatives of governments, employers, and workers and so-called agricultural experts, along with representatives of international bodies dealing with social problems in agriculture, and certain members invited by the officers of the governing body to attend particular meetings.

The agenda of the first session, fixed by the Governing Body, consisted of the following items:

1. General discussion of problems of agricultural labor and their relative importance.
2. Protection of child labor in agriculture.
3. Holidays with pay in agriculture.
4. Technical study on hours of work in agriculture.

It was intended that another meeting of the committee would be held in Geneva in September of 1938, but the disturbances in Eur-

[1] The official name of the organization. The International Labour Office is the administrative organ of the International Labour Organization. The International Labour Conference is the highest authority and consists of national delegations, composed of two government members and one delegate each of management and labor. The Conference ordinarily meets once a year. The Governing Body functions as an executive council, meeting usually four times a year. It is elected by the Conference at three-year intervals and consists of thirty-two members.

[2] From a foreword to *What the International Labour Organization Means to America* edited by Spencer Miller, Jr. Columbia University Press, 1936.

[3] The report of this session was published by the International Labour Office under the title, *Social Problems in Agriculture.*

rope made postponement necessary, and the outbreak of war prohibited further meetings until the second session was convened in Geneva in August, 1947. The agenda for this session consisted of the following items:

1. General survey of developments since the first session of the committee, and discussion of the order of priority for consideration by the committee of problems of agricultural labor.
2. Minimum wage regulation in agriculture.
3. The medical examination of children and young persons for fitness for employment in agriculture.
4. Security of employment and occupation in agriculture.

A call went out from Geneva on March 15, 1949, to convene the third session of the committee in August or September of 1949. The agenda as approved by the Governing Body is as follows:

1. Hours of work in agriculture.
2. Medical examination of children and young persons for fitness for employment in agriculture.
3. Security of employment and occupation in agriculture.
4. Extension of Social Security to the agricultural population.

The reason some items recur in the agendas is that they were given only preliminary discussion in a previous session, and were brought up in subsequent sessions for final disposition. Some of the items may be retained for consideration in several sessions.

The I.L.O. seeks to implement its program through submitting to its member governments Draft Conventions regarding labor. If and when a member country ratifies such Conventions, it assumes the obligation to bring its legislation into line with the Convention's provisions. For example; a Convention which sets up standards for working conditions of women and young workers, when ratified by the member countries becomes, in effect, an international treaty on this problem. The general result is to provide uniform standards throughout the countries of the world and place them on a more nearly competitive basis, and, of course, to raise the level in countries whose standards previously were low.

The importance of attempting to do something in the field of agricultural labor throughout the world is underscored by the fact that upwards of two-thirds of the workers of the world are engaged

in agriculture. At the same time, the wide variation in agricultural conditions in various countries presents problems of almost insurmountable difficulty. This diversity was spotlighted in the 1947 session of the committee. The representative from the United Kingdom called attention to the fact that all of the standards being discussed had already been achieved in his country; while the representative from India could hardly conceive of their application in his country in the foreseeable future. Minimum wages, holidays with pay, the elimination of child labor, medical examinations for children entering agriculture, and the extension of social insurance to agricultural workers seemed to the Indian representative to be largely academic considerations. Even in the United States and Canada there will be much controversy over many of these measures, and it may be a long time before some of them are adopted; some may never become part of our systems. In short, some policies readily adaptable to certain countries are often not practicable in others. However, the general goal of improving the working conditions and the level of living of people who are engaged in agriculture is admittedly a worthy one, however difficult may be its attainment.

As the present representative from the United States on the Permanent Agriculture Committee, the writer has felt the need of some means of closer articulation between the committee and the agricultural people of the member countries. Obviously, any measures agreed upon for submission to the Governing Body and Conference, and perhaps ultimately submitted to the member nations, must have some practical relation to the conditions in those countries, and a basis in public opinion for their ultimate adoption. There is no way, at present, by which the committee members, themselves, can influence public opinion except through their limited personal efforts. Of course, no country is bound by its membership in I.L.O. to adopt any of the conventions that may be submitted to it, but it is bound by its agreement to have its treaty-making body consider such conventions. Three agricultural items will appear on the agenda of the thirty-third session of the International Labour Conference to be held in 1950. The Conference is the body which makes the final decision on Conventions to be adopted and submitted to the member countries. These items are: (1) General report on agricultural labor problems; (2) Minimum wage-fixing machinery in

agriculture; (3) Holidays with pay in agriculture. If either is adopted as a Convention by the Conference, it will come before the Senate of the United States for consideration. If the Senate should ratify it, appropriate legislation to implement it would be passed. Such is the procedure. Obviously, public opinion will determine the fate of such proposals.

One serious shortcoming in the composition of the Permanent Agricultural Committee at the present time, particularly as regards the United States and Canada, is that there is no representative of agricultural labor, nor of agricultural employers. Dr. John F. Booth of Canada, and myself from the United States, are the sole representatives. The fact that collective bargaining has never been a significant feature of agricultural employer-employee relations in these countries, and that neither labor nor employers are organized for this purpose, makes it extremely difficult to find authoritative spokesmen for either. Who is there, for example, to speak for the sharecropper, the migratory worker, the hired hand, or for the cotton planter, the cane grower, or the corn belt farmer?

Finally, it should be pointed out that very little research has been done in these countries on farmer-worker relationships. There is critical need for the study of attitudes of both groups regarding the adoption of uniform standards and for knowledge concerning the existing practices in various types of farming areas. It is impossible to consider intelligently the problems of agricultural labor without possessing a great deal more information than is available at the present time.

A final comment is in order. The Committee as presently constituted is a transitional one, composed of several of the original members (Booth and myself among them) and this forthcoming session will be the final one for it. A new committee will then be organized, which presumably will be more widely representative, both of member states and of economic groups. It is to be hoped that the problems of labor in American agriculture will be studied more intensely in the future, in order that we may have a more substantial base in factual information for the discussion of labor policy.

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WHAT IS THE BASIS OF FARM FINANCIAL PROGRESS?

WHAT are the circumstances which make it possible for one farmer to accumulate a considerable estate during his farming life time while a neighboring farmer accumulates little? Is it because the one farmer started with more money, or because his farm is larger? Does it make any difference how deeply he had to go into debt when he bought his farm? Just what is the basis of farm financial progress?

A study of farms in Arland Township, Barron County, Wisconsin, made in 1939 and 1946 may hold some leads to the answers to these questions. Arland Township was chosen for the study of farm financial progress because it was representative of rural areas of the northern cut-over region of the Lake States. There was considerable delinquency in the repayment of farm mortgages in this area in 1939 and Federal Land Bank holdings were increasing. All the farmers of the township who could be located and interviewed, a total of 139 farmers, were visited. Interviewers asked about such things as tenure status, individual family history, current farm income, debts, savings, size of farm—anything that might throw light on the question of why one farmer made money and another did not. A repeat study was made of the same area in 1946.

Description of Area Studied

There are no villages or trading centers in Arland Township. A cheese factory, now closed, was situated across the highway on the west side of the township and several trading centers are within a 10-mile radius of its center.

Dairy cows supply the major part of the farm income in this area. The soil is fair to good for the production of feed crops. No cash crops are grown. The southeastern part of the township has some sandy soil while much of the remainder of the cropland is sandy to silt loam. A gently rolling topography characterizes the northeast and northwest corners of the area. Along the Hay River which flows directly south just west of the middle of the area is a fairly narrow strip of rough land.

The township was completely settled by the turn of the century. Records show that the last farm was homesteaded in 1899. At this time practically all farmers were owner-operators. Some farms

were operated by tenants soon thereafter, however, and by 1938, 20 percent of the farms were renter operated. Farm tenancy remained fairly constant from then to 1945 when 18 percent of the farms were operated by renters.

The time of purchase by the present (1938) owner-operators was fairly evenly distributed over the period from 1900 to 1938. (Table I)

TABLE I. PRESENT OWNERS BOUGHT AT DIFFERENT TIMES

Year bought	Number of farms	Average crop acres	Net worth		Cost of farm when bought
			When farm was bought	In 1938	
1905	21	64	$1,055	$6,328	$1,751
1906–1913	17	60	2,437	4,659	4,590
1914–1921	28	52	2,105	3,151	4,847
1922–1929	20	41	2,373	2,902	5,108
1930–1937	25	45	1,010	1,788	3,766
All Farms	111	52	$1,759	$3,681	$4,025

The average net worths of the owner-operators at the time they bought their farms increased from $1055 for the 21 farmers who bought their farms around 1900, to $2373 for the 20 farmers who acquired farms in the eight-year period of the 'twenties. The group of 25 men who bought their farms during the depression period of the 'thirties were worth only $1010 at the time they bought their farms. It also may be stated that whereas the initial net worths of the new owners doubled between 1900 and 1938, the average value of the farm purchased increased three times, and the mortgage assumed went up nearly four times. The owners who bought during the 'thirties were worth no more than those who bought in 1900 yet the cost of the farm bought had more than doubled.

Size of Farm Important Factor

These records showed a definite correlation between the size of the farm and the operator's financial success (Table II). As the size of the farm purchased increased, the net worth of the farmer at the end of 15 or 20 years increased both absolutely and relatively. For instance, as the size increased from an average of 29 crops acres to 89, the average net worth of the operator in 1938 increased from $2394 to $5995. This represents an increase in net worth of 75 percent for the group of smallest farms from the time the farms

were bought to 1938; and an increase of 166 percent for the 26 large farms over the same period.

TABLE II. RELATION OF SIZE OF FARM TO ACCUMULATED NET WORTH

Size of farm (crop acres) Range	Average	Number of farms	Net worth When farm was bought	Net worth 1938
0–39	29	41	$1,365	$2,394
40–69	52	44	1,907	3,567
70	89	26	2,258	5,995
All Farms	52	111	$1,759	$3,681

Additional evidence of the importance of the size of farm is shown in Table III. Farmers who bought the larger acreages of crop land had greater material accumulations in 1938 than the small farmers, whether they had small or large net worths at the time of purchase. The farmers in each of the net worth groups who bought the larger farms had greater net assets in 1938 than those who bought the smaller farms. There is no known reason, however, why relatively large initial net worths should be a handicap to accumulating assets over the years as might be inferred from the group of farmers with the largest initial net assets.

TABLE III. RELATION OF NET WORTH AT TIME FARMS WERE BOUGHT AND SIZE OF FARM BOUGHT TO ACCUMULATING ASSETS

Net worth when farm was bought Range	Average	Number of farms	Net worth in 1938
0 to $999	$ 346	41	$3,106
16–39 crop acres		15	2,379
40–69 crop acres		18	2,743
70+ crop acres		8	5,420
$1,000 to $2,999	$1,705	50	4,188
16–39 crop acres		21	2,717
40–69 crop acres		18	4,702
70+ crop acres		11	6,022
$3,000+	$5,234	20	$3,669
16–39 crop acres		5	1,153
40–69 crop acres		9	2,970
70+ crop acres		6	6,696
All Farms	$1,759	111	$3,681

These tables clearly demonstrate the importance of the income-producing capacity of the farm as determined by its size. It would seem that if a farmer would be a financial success, his first consideration should be to buy a farm of sufficient size to support a large volume of business. Farm expenses usually do not increase as rapidly as income with the larger farm, and family size and living costs bear little relation to the number of crop acres on the farm. The size of the farm is important in accumulating assets because of the opportunity for greater current farm income.

The history of those operators who were renting farms was the same as for the owner-operators. In 1938 the six renters who had rented the largest farms had accumulated an average of $2,557 in net assets, while the eight who rented the smallest farms showed an average of only $759 net worth. The 14 farmers with the medium sized farms averaged $1,321 net assets.

Management Ability Also Vital

Perhaps the second important factor in financial success is the managerial ability of the individual farmer. Even within each farm-size group the range in net cash incomes was large. The net cash income in 1938 of the small farm group varied from $143 to $915 for individual farmers. In the medium farm group it ranged from $271 to $1,028; in the large farm group, from $332 to $1,311; and those farmers with the largest debt load were not the same as those with the smallest net cash income. The range in the abilities of the farmers to organize and operate their farms very probably accounts for much of the variation within each farm-size group, because the productive capacities of soils were practically identical for the various groups of farms.

Large Initial Debt Not Prohibitive

Another of the factors which might conceivably influence the farmer's financial progress is the debt load he assumes when he buys his farm. There has been considerable speculation concerning the wisdom of the federal government policy during the past years of increasing farm ownership through 100 percent loans. Is that too heavy a load for a farmer to overcome?

Of course it is recognized that the 100 percent loans made during the past decade have much better chances of being paid off than if the loans had been made during times of more nearly normal price

relationships, but this study would seem to indicate that it is not unreasonable to expect farmers to pay out on 100 percent loans even during normal times. Such heavy loans of themselves need not represent insurmountable handicaps to owner-operators.

Nearly 21 percent, or 23 of the 111 owner-operators in 1938, assumed 100 percent loans on their farms at the time of purchase. The chronological distribution of the purchase of these farms was quite uniform over the period covered by this study so that a wide range of farm prices was represented. Only 40 percent of these farms were bought either from the parents or other relatives, in comparison with approximately one-third of all farms of the area. This indicates that most of these loans were not family affairs but strictly commercial loans, made with the expectation of being paid off.

The organization of these farms was not different from that of other farms of the area. Cropping systems were similar and both groups depended upon the dairy herd for the major portion of their income. Outside sources of income played a minor part in the income of both groups, and the volume of business for each group in 1938 was approximately the same. The farms bought were no larger than those bought by neighbors during the same time, and these farmers started with smaller net worths when they bought their farms. Yet the 23 farmers who started with 100 percent loans are making out as well as purchasers with large equities at the time of purchase. They had accumulated an average net worth in 1938 of $3,742, as compared to an average of $3,681 for the total group of 111 farms.

There is no source of information that would indicate what proportion of farmers with 100 percent loans dropped out before 1938. Neither is it possible to determine whether the survivors lived more "austerely" than did those with relatively smaller debt loads. But this study shows that those farmers still on farms in 1938 who started with 100 percent loans succeeded in saving as much from their current incomes as the other groups, and by 1938 had accumulated savings comparable to the others.

The question might be raised as to whether the absolute size of the debt load might not be more important than its relative size in influencing the accumulation of net assets. This would seen to have some validity. According to this study (Table IV) those farmers who had the smaller absolute debt load accumulated somewhat

more assets over the years than those with the larger debt loads even though the average size of farm for the different levels remained partly constant.

TABLE IV. RELATION OF AMOUNT OF DEBT AT TIME OF PURCHASE TO NET WORTH

Debt load	Crop acres	Number of farms	Net worth	
			When farm was bought	In 1938
$ 0	32	8	$1,484	$2,685
0	50	8	2,915	4,388
0	85	7	1,532	8,581
Average 0	53	23	$1,975	$4,937
1–1,500 885	22	11	948	2,373
722	52	7	1,089	4,385
922	82	4	2,176	4,691
Average 837	42	22	$1,158	$4,212
1,501–3,000 2,440	31	12	1,485	3,129
2,267	49	10	1,245	4,092
2,545	99	6	3,240	4,810
Average $2,401	52	28	$1,775	$3,833
3,001–4,500 3,867	35	7	2,605	838
3,712	51	8	1,142	1,887
3,625	86	4	1,557	3,557
Average $3,751	53	19	$1,769	$2,331
4,501– 4,995	35	2	175	2,390
6,310	54	11	2,999	1,776
6,793	87	6	2,336	3,979
Average $6,324	62	19	$2,466	$2,746
All Farms $2,496	52	111	$1,759	$3,681

As the debt load was increased from nothing to $4,500, the accumulated net worth in 1938 decreased from $4,900 to $2,700. However, the increase in net worth with the smaller debt was not proportional to the difference between the debt loads. Another interesting observation was that the group of 19 farmers whose debt load was between $3,000 and $4,500 when they bought their farms had a smaller average net worth in 1938 than the group of 19 farmers with initial debts of more than $4,500—the two groups averaging $2,331 and $2,746 in net worths respectively.

The debt load is not correlated with size of farm in this area. Both small and large farms were bought in each debt group. Accumulated net worths were greater within each debt group for those farmers who bought the larger farms. No matter whether the debt at the time of purchase was zero or $6,000, the farmers who bought the larger farms accumulated from two to four times as many assets as those who bought the smaller farms. Larger debts apparently do not slow up the process of asset accumulation to any extent when associated with large enough farms.

Initial Assets Play Minor Part

Operators who start farming with greater net assets are presumed to have a better chance of making good than those who start out with less. This study would seem to indicate, however, that this time-honored assumption does not necessarily hold, i.e., that larger initial net worth of itself will account for greater assets 20 years later (Table III).

Twenty of the continuous owner-operators in the 1938 study had net worths in excess of $3,000 at the time they bought their farms—their average was $5,234. Twenty years later, their average net worth was $3,669, a drop of 30 percent during the period.

Fifty operators entered farming with net worths between $1,000 and $2,999—average $1,705. A generation later their net worths had increased to an average of $4,188. This is not only $500 more than the highest net worth group accumulated, but also represents an increase of 140 percent in net worth over the period.

Forty-one farmers averaged only $346 net worth at the time they bought their farms. By 1938 they had accumulated only $600 less than those who started with nearly $5,000 more. They increased their holdings over the period by $2,800, which is more than was accumulated by the group with $1,350 greater initial assets. The group which was best off as far as initial assets are concerned actually decreased their net holding by $1,600. This loss took place despite a few more acres of crops than were handled by either of the other groups.

These findings would seem to indicate that a farmer need not necessarily start with large savings in order to make money. On the other hand, it is possible that income from a 65-acre dairy farm is not large enough to maintain as large a net worth as some of these farmers possessed when they bought their farms. There is certainly

no logical reason why large net worth at the time of purchase of a farm should be a handicap to any farmer. Some farmers in each asset group accumulated considerably more than average while others accumulated much less. The cause-effect relationship here probably is size of farm and net assets.

Soil Productivity not Decisive Factor

The question is often raised in connection with the financial progress of farmers as to whether farms of the area with soils of better productive capacity cost more than other farms, and if so, does it pay to assume these additional costs. Practically every field in the township was classified according to its "present inherent productive capacity" by a soils specialist. Five levels of productivity were established: A, B, and C land, which under usual price conditions could well be kept under the plow; D land, questionable for profitable crop production; and E land, which a "combination of unfavorable circumstances" made unsatisfactory to continue to use for crop production.

This classification of the farms of the study shows that per acre crop production did tend to follow the inherent productivity ratings as made by the soils specialist, in that soils A, B and C produced definitely more than soils D and E. Operators on A and B soils in 1945 averaged only a few hundred dollars greater net worth than those on C soils, while the few farmers in the D and E groups had accumulated conspicuously smaller assets than any of the other soil groups. The difference was approximately $2,400 in 1938.

This difference in net worth between the soil groups is enough to justify a somewhat larger payment for the higher rating farms, if all the difference is attributed to this one factor. It happens, however, that these lower rating farms also had 20 percent less crop land, and as we have seen the size of the farm is very important in accumulating net worth. Also such a conclusion assumes that the farms of each soil group received comparable handling—an unrealistic assumption. The writers found a few instances where the farmers on the D and E soils were hauling manure from the farms with the higher soil ratings and spreading it on their own farms. Some of the farmers on the less desirable soils made special efforts to improve yields that were not practiced by many of the farmers with the better soils.

1946 Study Shows Rapid Turn-over

It is surprising that only seven years after the first study—years of high prices and good farm incomes—only 71 of the 139 farmers visited in 1939 still lived on the same farms. Of the 68 farmers who had moved during this period, only one-fifth were accounted for by natural causes such as death and retirement. None of these farms was taken over by sons or sons-in-law. Nearly 40 percent of the changes were the result of foreclosures and voluntary sales by operating owners, while another 16 percent were renters who were forced to move because of the sale of the farms they were operating. By and large the noncontinuous operators were older, had less yearly income, and fewer net assets than the continuous owners. The fact that many of these farmers were nearing the 60 year mark and had fewer assets may help account for their failure to stay in the area. It also brings out the fact that a relatively large proportion of the farmers interviewed in 1939 were older men.

The accumulation of net assets of the 71 farmers still remaining on the same farms was nearly twice the amount accumulated during the previous 20 year period covered in the 1939 study. The for-

TABLE V. RELATION OF SIZE OF FARM WHEN BOUGHT TO NET WORTH IN 1945

Crop acres		Number of farms	Net worth		
Range	Average		When farm was bought	1938	1945
0–39	31	25	$1,593	$2,425	$5,407
40–69	51	30	1,880	4,311	8,097
70+	99	16	2,749	6,444	9,570
All Farms	55	71	1,798	4,489	7,449

tuitous gains resulting from the rapid increases in prices of farm products during this period thus completely overshadows the influence of the management factor which was more evident during times of more normal price relationships. It should be observed that although the farmers with the largest farms continued to increase their net worths during this period of rapidly rising prices, neither their absolute nor relative increase was as great as that of the smaller farms (Table V).

The total income of these larger farms was also much greater

than for the other two groups of farms. They spent relatively more money, however, so that savings during this period were not as large as for the owners of the medium sized farms. It is possible that the farmers with the larger net worths and larger farms did not have the incentive to save and pay off debts that apparently motivated the farmers with the smaller operating units.

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A CALIFORNIA CASE STUDY IN LOCATION THEORY: THE GLOBE ARTICHOKE ON THE MORO COJO

The theoretical solution of a location problem for agricultural crops usually begins with the assumption of perfect competition between owners of land, of perfect knowledge of the market for all crops which may be grown on the land, and of perfect knowledge of the adaptability of various crops to the land. Given this simplified economic model, it is possible to examine the "technological" coefficients of production,[1] and thus to determine the use to which each piece of land will be put. This can be done without examining the motivations of owners of land or of entrepreneurs who may purchase the use of land. It is only necessary that there be a variation in the degree to which the profit-maximizing motive influences the actions of each individual.[2] But when the conditions of perfect competition are not satisfied, especially when there are only a few owners of land, it is no longer safe to neglect the motivation of the individual, and it is certainly not proper to assume that the landowner in his economic activities is dominated by profit-maximizing motives alone.[3]

Establishment of the present principal American center of globe-

[1] Production thought of as consisting of all those operations necessary to bring the crop to the ultimate consumer.

[2] The unnecessarily restrictive assumption is sometimes made that the dominant drive of entrepreneurs must be for maximum profits, e.g., J. M. Brewster and H. L. Parsons, "Can Prices Allocate Resources in American Agriculture?" This *Journal*, November 1946, pp. 938–60. But it is not necessary that the drive to profit maximization be either dominant or general to produce the usual equilibrium solution. If all other conditions of perfect competition are met, including that of unlimited entry, the firms with the lesser degree of profit-maximizing motive will be driven into bankruptcy by their more aggressive competitors. This will continue until only firms with the strongest profit-maximizing motivation survive.

[3] Cf. M. W. Reder, "A Reconsideration of the Marginal Productivity Theory," *Journal of Political Economy*, October 1947, pp. 450–58; for a precise definition of profit-maximizing behavior, see T. de Scitovszky, "A Note on Profit Maximization and Its Implications," *Review of Economic Studies*, Winter 1943, pp. 57–60.

artichoke production in the lower end of the Salinas Valley in Central California is an excellent illustration of the part played in economic location by the motivations of the landowner. Artichokes require a climate with rare incidence of freezing temperatures, and, more significantly, one also free from excessive heat and excessive dryness. The Monterey Bay coast, which very seldom has frost and which is cool and foggy during most of the summer, appears to be well suited to the production of the artichoke. The artichoke's requirements are well satisfied by the silty clay loam and fine, sandy loam of the lower Salinas Valley flood plain.

It is not surprising, therefore, to find a crop with such special temperature requirements as the artichoke largely concentrated in this area. The process by which the artichoke found its way to its present principal location, however, does not reveal the smooth functioning of an automatic economic process, but rather the jerky change characteristically produced by a few individual decisions. Furthermore, examination of the way in which the solution of this particular location problem was reached suggests that there was nothing economically inevitable about the result, in the sense in which competition of many owners leads to an inevitable result. The overwhelming determinant was the personality of one strategically placed individual.

The greater part of the land in the Salinas Valley now devoted to artichoke production is contained in the 7,000 acres of the Rancho Bolsa del Potrero y Moro Cojo which the Mexican government granted to Captain J. B. R. Cooper of Boston in 1828. This rancho occupies the valley floor from the Pacific Ocean to a point about five miles inland. It includes almost all the valley land lying in the belt of heavy fog.

The rancho is still largely owned by descendants of the original grantee, and throughout its history much of its area has been under the control of one individual. Decisions as to land use have therefore been unique and personal, and there has been little opportunity for the play of competitive forces within its boundaries. Furthermore, the combination of soil and climate found on the rancho is almost unique, so that there is little basis for comparison with other property.

During the early years of its operation the lands of the Moro Cojo were devoted almost entirely to cattle raising. Probably in the 1860's Captain Cooper began to grow barley and wheat, and

this continued to be the major crop until 1888. In that year, Mr. Claus Spreckels constructed a beet-sugar factory at Watsonville which was the largest as well as one of the first in the United States. At the same time Mr. Spreckels signed the first lease in the Salinas Valley for sugar-beet land: 1,000 acres of the Moro Cojo at the mouth of the Salinas River. When the time came for renewal of this lease, the trustee of the estate, Cooper's son, insisted that Spreckels take the entire ranch. In this way the sugar company came to operate the property, with a short lapse of the lease on one section of it, until 1922.

The Spreckels Sugar Company subdivided the land into tenant holdings and constructed houses and farm buildings on each one of these subunits: these were then sublet to operating tenants who planted a substantial part of the land to sugar beets each year.

For over thirty years, from 1888 to 1922, the Cooper-Molera family which owned the ranch found the arrangement with the Spreckels company quite satisfactory. Rent was paid in advance, and the owners had no responsibility in the administration of their property other than cashing the rent check and paying the taxes. Negotiating a new lease every five years was something of an annoyance, but otherwise the arrangement seemed as good as could be asked for and the owners were content to let well enough alone. If additional income might have been obtained by more active supervision of the ranch, it was not thought to be worth the time and effort necessary to produce it.

In 1919 the death of Mrs. Molera, who had managed the property since the death of her brother, transferred control of over 3,000 acres of the property to her son, Mr. A. J. Molera. The personality of this new administrator had a profound and lasting influence on the utilization of the land placed under his control.[4] Mr. Molera was not a farmer, and the practice of his family since the death of his grandfather had been to do little more than cash the rent checks. But somehow his interest in farming had been stimulated, and he began to take an active part in the affairs of the Moro Cojo.

The Change to Artichokes

Through a friend who was raising artichokes in the Half Moon Bay area[5] of San Mateo County he became interested in that crop.

[4] The story of the conversion of the Moro Cojo from sugar beets to artichokes is based in large part on information supplied by Miss Frances J. Molera.

[5] Some 50 miles north of the Moro Cojo.

The Moleras had already grown artichokes as a garden vegetable on the ranch they owned near Point Sur, south of Monterey, and Mr. Molera was convinced they could be raised on the Moro Cojo. The artichokes in San Mateo County were inadequately irrigated, but Mr. Molera reasoned that if he were to irrigate the excellent soil of his ranch, he should be able to grow large crops of the vegetable profitably.

Artichokes had been grown commercially in coastal districts of San Mateo County as early as 1900, but the acreage remained small and the market limited. Some artichokes were shipped to the eastern cities, but until World War I the principal supplier was France. When shipments from Europe stopped during the war demand for the western crop increased, and by 1921 plantings had been made as far south as Santa Cruz, and amounted to about 3,000 acres.[6]

In November 1921 the *Pacific Rural Press* reported[7] that the New York produce firm of Steinhardt and Kelly had made arrangements with the San Francisco Artichoke Growers' Association to handle the crop from 5,000 additional acres, of which about 2,000 were to be along the Pajaro River near Watsonville.[8] Steinhardt and Kelly were to distribute the entire production of the Association on the eastern seaboard. Shortly thereafter the produce firm launched a vigorous campaign to increase the demand for artichokes.[9]

> A fifteen thousand dollar banquet was recently given by Steinhardt and Kelly of New York to competitors and customers who were fed artichokes and artichoke talk. This is something new in the way of selling a vegetable. The hosts at this banquet sent out the word that they can handle all the artichokes that they can get. The market is opening up in a conspicuous way and their representatives are now hunting new fields to produce this vegetable which has failed in all parts of America as a commercial crop except in the fog belt along the coast of San Mateo and Santa Cruz Counties.

Apparently the campaign of the artichoke dealers was successful and in July the *Pacific Rural Press* reported[10] "Artichokes were handled through chain stores and in common groceries this season

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[6] E. A. Stokdyk, *Marketing Globe Artichokes*, Univ. California Agr. Exp. Sta. Bul. 524, April 1932, p. 5.

[7] Nov. 5, 1921, p. 462.

[8] The Pajaro River empties into Monterey Bay at a point about seven miles north of the mouth of the Salinas River.

[9] *Pacific Rural Press*, Jan. 14, 1922, p. 55.

[10] July 1, 1922, p. 10.

where heretofore they were handled only by the most exclusive trade."

Over 100 carloads were shipped into the New York market during the season at prices averaging $8–$10 per box up to April 1, and $6 for the rest of the season.[11] Regular market quotations were not recorded until 1925, but from then until the end of the decade New York artichoke prices did not at any time rise to $8 in the New York market, and typically fluctuated around $4.[12] Prices were high in 1921.

The very attractive artichoke market, plus information obtained from the tenants, convinced Mr. Molera that the revenue from his property could be greatly increased by leasing directly to the farmers, rather than through the sugar company.

When the Spreckels lease expired in November 1921, there was a delay in renewal. Mr. Walter Tavernetti[13] says that the Spreckels company offered to renew if the rent were cut from $15 an acre, which they had been paying, to $12.50 an acre. According to Miss Molera, her brother had found out that the tenants would be willing to pay $35 an acre and more if he would drill wells on the property. The upshot of the matter was that the lease to Spreckels was not renewed, and Mr. Molera assumed direct supervision of the property and began leasing farms of from 75 to 150 acres directly to farmers, urging them to put in artichokes.

At first tenants were reluctant to invest the capital required for growing this perennial vegetable, which will bear heavily for three or four years, sometimes for as long as ten years, before replanting is necessary;[14] it was not until Molera agreed to furnish the plants if the farmers would put them in that he began to make headway. The first planting was made in the spring of 1922, and by the fall of that year about 600 acres had been planted.[15] By 1925 there were over 4,000 acres of artichokes in the county, mostly on the Moro Cojo.

Change under Large Landowner Differs

The foregoing account illustrates some of the characteristics of economic change to be expected if the decision as to land use is

[11] *Idem.*
[12] Stokdyk, *op. cit.*, pp. 23–25.
[13] Tax Assessor of Monterey County.
[14] A. A. Tavernetti, *Production of the Globe Artichoke in California*, California Agr. Ext. Serv. Circ. 76, rev. October 1947, pp. 7–8.
[15] D. H. Kieffer, "Salinas Delta Becoming Famous," *Pacific Rural Press*, Sept. 15, 1923, p. 263.

made by one large landowner rather than by a number of small owners. Change under these conditions differs from change under competitive conditions in two principal ways: the general economic development is discontinuous and irregular; and the nature of the change is not determined by purely economic considerations.

The large landowner is free to some extent from economic pressure to adjust land utilization continually to changing conditions of the market if the income from the property is so large that any increase in income would appear not to justify the increased time and effort required to bring it about. For this reason there will be a strong tendency for property to be kept in its accustomed use over long periods of time. Thus the Molera family more or less left the Moro Cojo alone for over thirty years; this management policy was changed, not by economic forces, but by the accidents of birth and bequest.

On the other hand, when such an owner decides to change the way in which land is being used there may result a much more rapid conversion than would occur under competitive conditions. One decision only is necessary to bring about conversion of the total area included under one landownership; in addition the large landowner often has easier access to money-capital resources than the small owner simply because of the size of his land holdings. Molera's total investment in improvements on his land must have been considerable. Wells had to be drilled, the land leveled, and ditches dug. In addition, if he was to have better and more permanent farmers, it was necessary to build additional houses, barns, and sheds. Mr. Molera also undertook instruction of his tenants in cultivation of the new crop,[16] and introduced those who needed financing at the local banks. The tenant's investment was not small, but the major burden of conversion had to be assumed by the owner.

Absence of noneconomic pressures may permit changes in land utilization to be largely a function of the personality of the landowner and consequently indeterminant in any social sense; furthermore, there is no guarantee that once change is decided upon the new use to which the land is put will be the optimum use.[17] We cannot be sure, for example, that concentration on artichokes was the

[16] There was very little information in this country on growing of the artichoke. Mr. Molera used as his principal guide a French publication which he had seen advertised in a Spanish farm journal to which he had subscribed. Later the great horticulturist Luther Burbank advised him in the culture of the crop and in the selection of varieties.

[17] If the landlord's decision to change does not arise from a desire to maximize returns the new use of the land may even produce a smaller revenue than the old use.

best choice even when the change was first made; we certainly have no firm assurance that it is now the best choice.

Even under "competitive" conditions the problem of testing efficiency of land use is by no means an easy one, but the presumption would seem to be that there is a general tendency for owners who employ land in less efficient uses to be forced to surrender their land to more efficient owners. When the landownership unit is very large, lack of homogeneity of land over very large areas makes it extremely difficult for potential purchasers of the land to make accurate comparisons of the income from the land in its present employment and its possible income under alternative employment.

As far as the economist is concerned the solution under such circumstances must be indeterminate within wide ranges. The lower limit of efficiency is that which will result in the rapid using-up of the capital value of the land; the upper limit of course is the optimum land use available. Within these very wide limits the solution of the land-use problem, when large ownership units are present, is determined by chance as it operates to put control of the property into the hands of a more or less efficient and profit-minded owner.

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THE EFFECT OF A REDUCTION IN FARM PRICES ON FARM EARNINGS

OF MAJOR concern to farmers at all times is the trend and the level of agricultural prices. The level of farm prices is one of the most important factors affecting the year to year variations in income received by the farmer. The trend of farm prices (whether up or down) affects the prospects of future earnings. Farm incomes are highly unstable and fluctuate widely from year to year.

Most farm products are sold in a highly competitive market with demand and supply relationships determining the prices received.

The volume of production of individual farm products (especially crops) is subject to considerable variation from year to year, contributing further to fluctuations in the prices of farm products.

On the other hand, prices of things bought by farmers tend to be more rigid. An important factor contributing to the rigidity of these prices is the relative inflexibility of wage rates in industry. In gen-

eral, wage rates rise and fall less than prices and are not adjusted as quickly to changes in demand and supply. This rigidity in wage rates is more pronounced during a period of declining prices. When demand declines for industrial products, workers are laid off and output is reduced. This adjustment of production of most manufactured products to fit the demand helps maintain prices of manufactured products at a fairly stable level. Cash farm production costs then (being largely payments for manufactured products and hired labor) tend also to be rigid. Consequently, when the selling prices of agricultural products decline, net farm income declines even more.

This pressure on net farm income during a price decline is likely to be more intense in the future because of two important changes with respect to farm production costs which have taken place in the last two decades. First, the level of farm costs has risen markedly in the last few years. Farm production costs today are the highest in history. Many farmers now have cash farm expenses higher than their total gross income in previous years. Farm costs for 1948 totaled approximately 18 million dollars which was greater than gross farm income for any year prior to 1942.[1] Second, direct cash expenses now make up a much higher proportion of total farm costs than they formerly did.

Following World War I, many farm costs were not direct cash outlays. Horses furnished most of the power and could be raised on the farm. When prices declined, it was necessary for farmers to accept less than going rates for their labor, thus absorbing part of the price decline in a lower standard of living.

Since then, great strides in farm mechanization have taken place, resulting in a much higher proportion of direct cash outlays. Cash outlays for gas, oil, and repairs are necessary for modern power equipment farming. Mechanization has required a higher investment in farm machinery, the cost of which must be paid out of farm earnings. The improved farm practices widely adopted in the last few years, although highly desirable, have increased total farm costs. Items such as improved varieties of seed, chemical weed control, and the wider use of commercial fertilizers, all are direct cash production costs. The effect of these two changes in the farm cost picture, a higher level of total farm costs and a greater proportion of direct cash expenses, are problems about which farmers are seriously concerned when farm prices decline.

[1] *Agricultural Situation*, BAE, Vol. 32, No. 11, Nov. 1948.

In order to illustrate more specifically the effect of a decline in farm prices on farm earnings, a comparison has been made between the actual 1948 earnings and the probable earnings, assuming farm prices at 90% of parity (Table I). These figures represent the average receipts, expenses, and net farm income for a group of ten farms in southeastern Minnesota and also similar data for a group of five farms in southwestern Minnesota. These farms were selected from the records of cooperators in the southern Minnesota Farm Management Services. The farms selected in both these areas are larger and more productive than the average for the area. They are more highly mechanized. Major sources of income for the group of farmers in southeastern Minnesota was from the sales of dairy products, hogs, and poultry. For southwestern Minnesota sales of beef cattle and hogs provide the major sources of income. It is emphasized that this illustration is not a forecast that prices will fall to support levels nor is it to be considered as an endorsement of a specific price policy for agriculture. The purpose of Table I is merely to show the general effect on farm earnings of a reduction in farm prices and to supply a guide to farmers analyzing their own records. Farmers, then, must make their own interpretations as to the rate and extent of any future price changes in analyzing the effect on their own earnings.

The average net income received by these ten dairy, hog, and poultry farmers in southeastern Minnesota in 1948 was $10,404 (Table I). Assuming that prices were at 90 percent of parity with the same output as in 1948, their net income would then average $7,921. This represents a decline of 24 percent in net farm income, showing the effect in the immediate future of a reduction in farm prices. Receipts for this group of farmers would decline about 17 percent, while costs would decline only 6 percent.

The decline in farm earnings was considerably greater for farms with feeder cattle and hogs in Southwestern Minnesota. For this group, the average net farm income in 1948 was $6,384. Assuming prices at 90 percent of parity again, their net income then would average only $2,352, a decline of 63 percent. The wide difference in the effect on earnings of these two different types of farms of a decline in prices to 90 percent of parity is accounted for largely because of differences in the ratios of present prices of various farm products to their corresponding 90 percent of parity figure. Average

TABLE I. COMPARISON OF ACTUAL 1948 FARM INCOME WITH PROBABLE INCOME, ASSUMING PRICES AT 90 PERCENT OF PARITY[1]

Item	10 Farms Southeastern Minnesota		5 Farms Southwestern Minnesota	
	Actual value 1948	Value under 90% of parity[2]	Actual value 1948	Value under 90% of parity[2]
		Farm receipts		
Dairy cattle	2,274	1,478	215	140
Dairy products	5,403	4,710	436	243
Feeders	—	—	11,042	6,166
Hogs	4,075	3,206	5,167	3,854
Sheep, lambs and wool	326	228	968	677
Chickens	236	227	286	297
Eggs	1,137	1,331	795	946
Crops	2,314	1,772	4,519	3,753
Equipment sold	340	340	355	355
Misc. income	843	843	762	762
Total receipts	16,948	14,135	24,545	17,193
		Farm expenses		
Feeders	—	—	6,131	3,424[3]
Hogs	87	84[3]	898	637[3]
Other livestock purchased	862	570[3]	749	487[3]
Misc. livestock expense	213	213	156	156
Misc. crop expense	963	915[4]	1,010	959[4]
Feed bought	1,584	1,233[5]	2,395	1,906[5]
Custom work hired	583	583	431	431
Power, machine equip. new	2,582	2,582	3,088	3,088
Power, machine equip. upkeep	1,329	1,329	2,279	2,279
New buildings	910	910	1,623	1,623
Bldgs. upkeep	264	264	441	441
Hired labor	1,002	1,002	1,333	1,333
Taxes, and general farm exp.	628	628	522	522
Rent	213	213	426	426
Interest	154	154	512	512
Total farm expenses	11,374	10,680	21,994	18,224
		Farm income		
Farm receipts	16,948	14,135	24,545	17,193
Increase in farm capital	4,830	4,466	3,833	3,383
Total	21,778	18,601	28,378	20,576
Farm expenses	11,374	10,680	21,994	18,224
Net farm income	10,404	7,921	6,384	2,352

[1] Parity prices as given in *Agricultural Prices* (Monthly), BAE, 1948.
[2] Assuming the same output as in 1948.
[3] Cost of livestock purchased adjusted downward in same ratio as estimated decline in selling prices of livestock.
[4] Miscellaneous crop expense reduced five percent.
[5] Cost of feed grains purchased adjusted downward to correspond with selling prices. Commercial feeds purchased reduced 10 percent.

prices received for beef cattle and flax in 1948 were much higher relative to parity than were the prices received for dairy products. An adjustment in prices to 90 percent of parity then would cause a much higher percentage reduction in income for farmers whose major source of income is feeder cattle than for those farmers selling dairy products.

Since these calculations were made to show the immediate effect, only those costs which would be reduced in a short time were adjusted downward. These include cost of purchased livestock, miscellaneous crop expenses (cost of seeds and fertilizer) and feed bought. If the trend in farm prices should continue downward for an extended period of time, some of the other costs (which are not adjusted in Table I) would also decline. Also, certain farm costs, such as the purchase of new equipment or the erection of new farm buildings, could be postponed. Certain production costs, however, are likely to remain high for a considerable period of time. Property taxes may even continue to rise when farm prices are falling. Interest and payments on indebtedness are fixed cash payments that do not fluctuate with the price level. Costs of labor and custom work hired are expected to remain high for some time.

This lag in cost rates when prices received by farmers are on the down turn places farmers in a price-cost squeeze, depressing farm incomes even more on a percentage basis than the decline in farm prices. Farmers thus need to concentrate to a greater extent on cost control to produce products as efficiently as possible. The emphasis must be placed upon increasing the output per worker and reducing costs per unit of product.

While farmers today are generally in a stronger financial position than at any time previously, some farmers who have gone heavily into debt in the purchase of land and equipment or in the erection of new farm buildings, will be in a vulnerable position if farm prices decline rapidly. Paying off indebtedness now and the building up of reserves from current income will strengthen the farmer's position in meeting the pressure on net farm income during periods of adverse economic conditions.

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SYNTHESIS OF LABOR INPUTS FOR HOGS FROM TIME-STUDY DATA*

FOR all kinds of farm planning it is necessary to develop sets of input and output data relating to costs, yields, prices, labor requirements and the like. While these are physical items, agricultural economists have considered it necessary to devote a considerable amount of effort to the collection of such data. Economists find it advisable to do this work themselves instead of getting the information from physical scientists because they want to find out "—what technical rates are possible in practice and which the farmer expects"[1] rather than the results of controlled laboratory experiments.

Various sources are used in the development of these "technical rates." For individual farm planning, a farm account book summary may be the principal source. In farm budgeting for research or extension purposes, account books, survey data, and experimental results are used. The search for input and output data represents a considerable share of total expenditures for farm management research. The possibility that too much effort is used up in this way has been raised by Dr. Schultz in the article previously cited, and by others. There is also need for improvement in the quality of input-output data.

The purpose of this paper is to describe a method of synthesizing one type of budget input data—labor requirements—from information secured in a time-and-motion study. The method is applied to the development, for the hog enterprise, of labor inputs that are suitable for arriving at comparative production costs on farms of different sizes. For this purpose, input data must be obtained with a considerable amount of care.

These labor inputs might be taken from survey data, but examination of published labor input figures based upon farm surveys indicates that, although they may be suitable as an expression of average labor requirements in a given area, they would be of limited usefulness in a study of relationships between size of enterprise and costs. The amount of labor reported for small enterprises may be high because of an abundant supply of labor, if labor is substituted

* Prof. L. S. Hardin, Purdue University, made available unpublished materials for use in this analysis.

[1] Schultz, T. W. "Theory of the Firm and Farm Management Research." This *Journal*, p. 584, August, 1939.

for some of the equipment. Thus hand-feeding may take the place of self-feeders, and water may be carried in pails rather than supplied by an automatic fountain. Methods of production may not be the same; some farmers farrow two litters a year, others only one. Results obtained from enterprises of different sizes are likely to vary because of differences in skill of the farm operators. Because of all these variations between individual farms it is difficult to determine whether reported differences in labor requirements are due to size of enterprise or to technique.[2]

A survey designed to compare efficiency in use of labor on enterprises of different sizes would have to include a very large number of records in order to permit the sorting and subsorting needed to give reasonable homogeneity in the characteristics of farms in different size-classes. Otherwise, the fundamental assumption that observed variations are a result of differences in scale, and not in system, of production is violated.

Because of these limitations on usefulness of survey data, an attempt has been made to calculate labor requirements for hog enterprises of different sizes by synthesizing information from a detailed time and motion study of individual jobs. In this process, the assumed system of production is kept the same, and variations due to differences in skill and dexterity of individual operators are eliminated.

Basic data are taken from an Indiana study of the hog enterprise.[3] This study contains detailed time and motion analyses of the principal jobs in hog production as observed on five Indiana farms. While production practices, methods and equipment were not identical on all farms, data were presented in a way to show in detail the processes used performing each job and time spent on each operation, as recorded in stop-watch studies.

The procedure involved in synthesizing labor inputs from these data was as follows: First, certain assumptions were made as to the system of hog production, production practices, and equipment. The average distance traveled from the farmstead to the hog pasture was assumed to be 40 rods. It was assumed that an average of

[2] For examples of survey data on labor requirements by size of hog enterprise see: J. A. Hopkins, "An Economic Study of the Hog Enterprise." *Iowa Agr. Exp. Sta. Bul.* 294, 1932; and H. C. M. Case and R. C. Ross, "The Place of Hog Production in Corn Belt Farming." *Ill. Agr. Expt. Sta. Bul.* 301, 1927.

[3] Oberholtzer, John W., *The Application of Motion and Time Study Techniques to Certain Agricultural Enterprises.* Purdue University, June, 1944. Unpublished Thesis.

6.1 pigs were saved, and 5.7 raised per litter, and that pigs were sold at 235 pounds and sows at 335 pounds. It was assumed one boar would be kept for each 30 sows and that a boar would be maintained if there were as many as five sows. Based upon a number of publications on hog production, a list of jobs connected with the enterprise was developed, and for each job a process was outlined. These jobs and processes are shown in Table I. For most of these processes, it was possible to adapt data from process charts in the Indiana study for the approximate total time required for each step of the process. One of these process charts is shown as Table I. This illustrates the kind of detailed measurements on which estimates in Table I were based. From the nature of each process, a decision was made as to the degree to which labor time would vary with changes in number of hogs. Time spent in travel, in starting tractors, or opening gates, was generally considered as fixed. A few operations were considered to be semi-fixed, such as hauling loads of water or feed, where time would not vary by individual sows, but by groups. Operations that primarily involved work with the hogs were considered to require a constant amount of time per hog.

With information given in Table I it is possible to construct a series of estimates, by jobs, of time requirements for different numbers of hogs, assuming no change in production practices, as shown in Table III. A question may be raised as to practicability of assuming the same practices for large and small numbers of sows. Consideration of the jobs to be done and the processes followed indicates that the system assumed fits both cases fairly well. Perhaps more allowance should be made for greater distances traveled with larger numbers, and in a few instances a producer of a small number of hogs might find it advisable to do more hand carrying of feed and water, but these are minor deviations.

Total hours per sow computed in this manner is somewhat lower than is usually reported in farm surveys. According to Dr. Oberholtzer, much of the difference between time required for an operation according to a stop-watch study and a survey can be explained as follows: "In the stop-watch studies only the time spent in actual labor or in necessary delays was recorded. The surveys tend to include time spent with the hogs when the operator was not working and when his presence was not necessary.[4]

While computed time spent on hogs is usually lower, variations

[4] J. W. Oberholtzer, *op. cit.* p. 145.

TABLE I. JOB ANALYSIS OF THE HOG ENTERPRISE, WITH APPROXIMATE TIME REQUIRED PER 20 SOWS[a]

Job	Process	Minutes per 20 sows		
		Total	Fixed	Variable
Spring Farrowing (21 days)				
Move houses 40 rods to pasture	Move with tractor, 2 houses per trip. Spray interiors of houses. Haul straw from stack and bed houses.	1,048	98	950
Clean and bed	Haul in low wagon, tractor drawn.	440	44	396
Move sows into houses	Four daily trips to farrowing pens on foot.	736	420	316
Care during farrowing	One load (about 30 bu.) hauled per ten sows during farrowing period.	74	18[b]	56
Hauling feed	Fill water wagon while doing other chores. Start tractor, drive 200 ft. to wagon, hitch and drive 40 rods to field, open gate, drive through and close. Drive 100 ft. to farrowing quarters and insert hose. Fill fountain while watering at quarters, remove hose, return to well, unhitch and return to tractor.	60	—	60
Hauling water with 300 gal. tank wagon. (Assuming 3 gal. per sow, four trips will take care of 20 sows for entire period)	Walk to farrowing quarters, feed and water sows (feed and water available at quarters), return from farrowing quarters.	534	210	324
Feeding and watering; twice daily				
Spring Suckling (42 days)				
Clean and bed houses	Clean houses and haul straw as above	740	60	680
Castrate	Pen sows in farrowing pens and pigs in farrowing houses. Catch pigs, lay on wall of house and castrate. Put pigs in pens with sows.	225	5	220
Vaccinate	Handle pigs in same manner as above.	225	5	220
Wean	Build creep around self-feeder. (3 feeders for 20 sows)	44	17	27
Feed and water	Feed ear corn to sows twice daily, pigs fed in self-feeders in creep.	3,515	2,189[b]	1,326
Summer Feeding (140 days)				
Sort for market	Set up pens, drive into pens.	636	127	509
Haul feed 40 rods and fill feeders	One load corn (2,000#) every every other day for 120 pigs.	2,590	—	2,590
Water	Haul with tank wagon to 100 gallon fountain waterers in field. One trip every other day for 120 pigs.	2,128	700[b]	1,428
Summer Feeding, sows (60 days)				

[a] Data derived from process charts in unpublished thesis "Application of Motion and Time Study Techniques to Certain Agricultural Enterprises" by J. W. Oberholtzer, and other sources.

[b] Semi- fixed.

TABLE I (Continued)

Job	Process	Minutes per 20 sows		
		Total	Fixed	Variable
Haul feed and fill feeders 8.3# corn per sow per day	Same as for other hogs.	176	36	140
Haul water and fill waterers	Same as for other hogs.	504	300	204
Summer Gilt Mgt. (140 days)	Time assumed to be same as summer feeding hogs, and included with it.			
Winter Sow Mgt. (162 days)				
Move houses and clean	Same as during spring farrowing.	713	63	650
Move sows	Same as during spring farrowing.	440	44	396
Breeding		272	27	245
Bedding	Haul straw from stack to quarters and bed houses.	212	42	170
Haul manure		300	60	240
Feed and water	Walk to quarters, throw feed into pens, clean and fill water troughs. Feed stored near hog quarters and water piped to quarters.	2,462	1,166	1,296
Care of boar, assuming 1 boar per 30 sows		1,200	1,200	—
Total time for 20 sows, minutes		19,274	6,831	12,443

TABLE II. WATERING AND INSPECTING 100 HOGS ON SUMMER PASTURE, HAULING IN TANK WAGON, TRANSFERRING TO FIELD FOUNTAINS, ONE TRIP EVERY TWO DAYS[a]

Operation	Total time minutes	Fixed time minutes	Variable time minutes
Tank filled while doing other chores	0.0	0.0	0.0
Start tractor and drive to wagon at well (200 ft.)	1.3	1.3	
Hitch to water wagon	.4	.4	
Drive to gate to field (660 ft.)	2.1	2.1	
Open gate, drive through, close	1.2	1.2	
Drive to water fountain (100 ft.)	.8		.8
Put hose from tank to fountain	.4		.4
Inspect hogs and wait for filling (walk 200 ft.)	15.0		15.0
Take hose from tank	.4		.4
Drive to gate to field (100 ft.)	.8	.8	
Open gate, drive through, close	1.2	1.2	
Drive to well (660 ft.)	2.1	2.1	
Unhitch	.4	.4	
Drive tractor to barn	1.0	1.0	
Total	27.1	10.5	16.6

[a] Adapted from J. W. Oberholtzer, op. cit. Process Chart 5, p. 63, but distance, gate to field reduced from 80 rds. to 40 rds. Distribution between fixed and variable time added.

TABLE III. LABOR REQUIREMENTS FOR HOG ENTERPRISES WITH DIFFERENT NUMBERS OF SOWS

Period and operation	Number of sows									
	5	10	15	20	25	30	35	40	45	50
	hours	*hours*	*hours*	*hours*	*hours*	*hours*	*hours*	*hours*	*hours*	*hours*
Spring Farrowing (21 days)										
Move houses, clean and bed	5.6	9.6	13.5	17.5	21.5	25.4	29.3	33.3	37.3	41.6
Move sows into houses	2.4	4.0	5.7	7.3	9.0	10.6	12.3	13.9	15.6	17.2
Care during farrowing	8.3	10.3	11.0	12.3	13.6	14.9	16.2	17.5	18.8	20.2
Hauling feed	.4	.6	.8	1.2	1.6	1.8	2.2	2.5	2.8	3.1
Feeding and watering	4.8	6.2	7.6	8.9	10.2	11.6	13.0	14.3	15.6	17.0
Haul water	.4	.6	.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2
Sub-total	21.9	31.3	39.4	48.2	57.1	65.7	74.6	83.3	92.1	101.3
Spring Suckling (42 days)										
Clean and bed houses	3.8	6.7	9.5	12.3	15.2	18.0	20.8	23.7	26.5	29.3
Castrate and vaccinate	2.0	3.8	5.7	7.5	9.3	11.2	13.0	14.8	16.7	18.5
Build creep for weaning	.4	.5	.6	.8	.9	1.0	1.1	1.2	1.3	1.4
Feed and water	32.9	38.4	53.0	58.6	64.1	87.9	93.4	98.9	104.5	110.0
Sub-total	39.1	49.4	68.8	79.2	89.5	118.1	128.3	138.6	149.0	159.2
Summer Feeding (140 days)										
Sort for market	4.2	6.4	8.5	10.6	12.7	14.8	16.9	19.0	21.2	23.3
Haul feed and fill feeders	10.8	21.6	32.4	43.2	54.0	64.8	75.5	86.3	97.1	107.9
Haul water and fill waterers	17.6	23.6	29.5	35.5	41.8	48.2	54.6	60.9	67.3	74.5
Sub-total	32.6	51.6	70.4	89.3	108.5	127.8	147.0	166.2	185.6	205.7
Summer Feeding sows (60 days)										
Haul feed and fill feeders	.7	1.5	2.2	2.9	3.7	4.4	5.1	5.9	6.5	7.3
Watering	5.9	6.7	7.6	8.4	9.2	10.1	11.0	11.8	12.6	13.5
Sub-total	6.6	8.2	9.8	11.3	12.9	14.5	16.1	17.7	19.1	20.8
Winter Sow Management (162 days)										
Move sows	2.4	4.0	5.7	7.3	9.0	10.6	12.3	13.9	15.6	17.2
Move and clean houses	3.7	6.5	9.2	11.9	14.6	17.3	20.0	22.7	25.4	28.1
Breeding	1.5	2.5	3.5	4.5	5.5	6.6	7.6	8.6	9.6	10.6
Bedding	1.4	2.1	2.8	3.5	4.2	5.0	5.7	6.4	7.1	7.8
Haul manure	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0
Feed and water	24.8	30.2	35.6	41.0	46.4	51.8	57.2	62.6	68.0	73.4
Sub-total	35.8	48.3	60.8	73.2	85.7	98.3	110.8	123.2	135.7	148.1
Care of Boar	20.0	20.0	20.0	20.0	20.0	20.0	30.0	30.0	30.0	30.0
Total hours	156.0	208.8	269.2	321.2	373.7	444.4	506.8	559.0	611.5	665.1
Hours per Breeding Unit	31.2	20.9	17.9	16.1	15.0	14.8	14.5	14.0	13.6	13.3

in labor input with changes in size of enterprise correspond fairly closely to survey results for small and medium sized herds. The synthesized data show a smaller decline in labor requirements than survey data, when medium and large herds are compared.

Experience gained in working through this synthesis of time-study data permits the following conclusions to be advanced with respect to usefulness of the approach as a source of budgeting information: (1) Synthesizing of input data requires intimate knowledge of the processes and operations involved in an enterprise. Some of this may be gained in making the time-study, but if the purpose is to set up typical budgets for an area, a survey is needed to show the typical situation with respect to equipment and practices. (2) Analyzing an enterprise in terms of jobs and processes facilitates the explanation of labor savings associated with volume of business. (3) Stop-watch studies tend to show minimum requirements. The person studied, knowing he is being watched, probably devotes his attention more strictly to the job at hand than he usually would. He may also move at a smarter pace than is customary. Time and motion studies omit or minimize time spent by farmers in looking over their crops and livestock, speculating on alternative lines of action, and making decisions. However, it should be relatively easy to develop a correction factor by comparing survey and time-study results on identical farms. (4) Time study data permit development of input requirements for a specific set of conditions, while survey data usually conceal wide differences in size of enterprise, equipment and practices used, and soil and weather conditions. (5) Where time-study data are available, labor inputs can be synthesized at low cost.

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HIGH FARM INCOME AND EFFICIENT RESOURCE USE

WILL prosperous conditions in agriculture, if achieved by government programs, keep excessive numbers of people and other resources in agriculture? Orthodox economic analysis leads most farm economists and farm leaders to say yes. They conclude that if a farm program were successful in keeping farm income at a higher level than free market prices, one of the important un-

desirable results would be too many people and too many other resources in farming—inefficient resource use. They hold this up as one of the great social and economic dangers of government programs for agriculture.

But a broader and more thorough analysis of forces at work in determining resource use in agriculture throws grave doubts on the accuracy of the orthodox answer. More people are born on farms every year than can find permanent jobs in agriculture. There is also a large fund of improved technology not yet adopted by farmers. These are two of the basic considerations in efficient resource use in agriculture.

Assuming jobs are available outside agriculture, will excess farm people move out faster under relatively high or relatively low prices for farm products? The first answer is that low prices will drive them out faster, but when one looks at historical trends one finds it is the areas where family incomes have been highest that farm consolidation, farm mechanization and city migration has been the most rapid. Between 1930 and 1940 farm population declined one percent in Iowa and increased 3.5 percent in South Carolina and 7.3 percent in Tennessee. Children in higher income families receive more school and college training and have more assistance in migrating to new jobs than children in low income families. In the past at least, and this has been true in the post-war years, farming at its most prosperous levels has been less desirable than many other occupations. There has been a reduction in the working force and a rapid increase in size of farms in the immediate post-war years. Farm prices have been above parity but the evidence does not support the orthodox answer that high incomes hold more people in agriculture.

Again in the field of technology the most significant observation is that high prices speed up the adoption of improved technology and low prices slow down the rate of adoption. It is true that more machinery, more fertilizer, more insecticides and other materials will be used in agriculture at a high level of farm income than at a low level of income, but farm consolidation will be speeded up and most family farms are now too small to use new machinery most effectively. Farm families will be released from agriculture by the adoption of improved technology, and members of farm families will be released from farm work at earlier ages to attend colleges

and vocational schools or to find non-farm jobs as more machinery and equipment is purchased with the higher incomes.

Proposals to maintain farm income at higher than free market price levels should be questioned from the standpoint of the controls and regulations which may be associated with them. They may lead to a transfer of income from non-farm to farm people that cannot be justified by socially acceptable criteria. There may be other reasons for disapproving of such proposals such as the growth of "big government"; but there is little basis for the fear that they will keep excess people in agriculture.

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BOOK REVIEWS

Rural Life in the United States. Carl C. Taylor, Arthur F. Raper, Douglas Ensminger, Margaret Jarman Hagood, T. Wilson Longmore, Walter C. McKain, Jr., Louis J. Ducoff, Edgar A. Schuler. New York: Alfred A. Knopf, Inc., 1949. Pp. xviii, 549. $5.00.

This book is a contribution from the past and present staff of the Division of Farm Population and Rural Life of the Bureau of Agricultural Economics of the U. S. Department of Agriculture. It is a mine of information made possible by the collaboration of specialists. It is organized into five parts:

I. Rural Society and Rural Sociology
II. Rural Organization
III. Rural People
IV. Rural Regions
V. Farmers in a Changing World

Rural sociology has, in fact, been farm sociology and this book follows the traditional pattern. The entire community is covered in discussing occupations and in considering conditions common for all in the community such as schools and facilities for medical care. The book is addressed primarily to rural sociologists, yet agricultural economists will get much from it. Many sections, especially those relating to population and labor force, provide important reference material for agricultural economists. For the most part the discussion avoids promotion. A notable exception is chapter 6, "The Rural School and Education," where the opening sentence, "the plight of the rural school," serves as the theme.

There are some omissions, cursory treatments and orientation of materials that detract somewhat from the over-all usefulness of the book. Some of these may have arisen because of agency bias or attitudes that come from professional specialization, but others do not so readily suggest such explanation. Such matters as the alleged domination (at least in some states) of the Agricultural Extension Service, by one or another of the powerful farm organizations; and duplication in counties among numerous agencies of the U. S. Department of Agriculture, for example, are omitted. Furthermore, the data as to equality of income selected for presentation are those that lend maximum support to the theme that farmers are a disadvantaged group. On p. 298 is a chart that shows per capita

income of nonfarm people close to three times that of farm. Yet a national survey for the year 1941 (see U. S. Dept. Agr. Misc. Pub. 520 and U. S. Dept. of Labor, Bul. 822) reports the following per capita incomes for families of two or more:

Group	*Per capita income*	*Farm income equals 100*
Farm operator	$409	100
Rural nonfarm including farm laborer	447	109
Urban	828	202

For these data nonmoney income in the form of food from the farm and garden is valued on the basis of prices that probably would have been paid had it been purchased. If farm laborers had been included with the farm rather than the rural nonfarm group the difference would have been increased somewhat, but even so quite different contrasts would have resulted from those used in the book. Furthermore, in discussing inequality of income, disparity between farm and nonfarm people is featured much more than that within agriculture. Little is said of the pressure that led to the shrinkage of the program of the Farm Security Administration designed to assist low-income farm families.

Juvenile delinquency is omitted in spite of the fact that a national conference was held in 1948 for which a separate report was prepared for farm communities. The discussion of "prospective development" of social security seemed less forthright than would be desirable if an understanding is to be developed of the forces operating on various legislation programs. In the final paragraph is a sentence referring to the "social conservatism of politically influential farm groups." The next sentence tells us, however, that rural public welfare is expected to lag behind urban public welfare because of the inadequate tax base.

More and more as attempts are made to use social sciences for predictive purposes it is recognized that the findings of various subject matter fields such as characterize college curricula should be synthesized. The various subject matter fields have too often gone their separate ways. Agricultural economists would be helped if sociologists (to whom has largely been left the investigation of population, at least in the United States) could tell them more about the nature of the decisions that underlie labor mobility. What, for example, is the income differential necessary to induce moves either in place of residence or occupation? What is the relation of the differential to distance? It would be helpful to know who is shifting

from nonfarm to farm place of residence and under what circumstances. Information beyond that on page 240 is needed. It would be important to know if those arriving on farms from nonfarm areas are coming for the most part to the fringe farm population. Perhaps with a different definition of terms they would be looked upon as merely moving from one nonfarm location to another.

Rural sociologists are also limited by the shortcomings of the economic data available and their analysis. Over and over again welfare implications of farm-nonfarm comparisons are invalidated because of lack of measures of differences in the cost of living. Some confusion is also introduced by erroneous interpretation of consumption data. The high cost of medical care at low income levels, for example, is overemphasized. The survey for any year may be heavily weighted with those who are much below their long-run income position because of the illness of the main earner. In other words the cost of sickness is high at the low income level because sickness that brought high doctor bills perhaps also brought the low income.

To make more meaningful the great mass of detail the book presents, more attention should be given to hypotheses and their testing. Focusing on certain current situations would have much merit. For example, it seems highly desirable at the present time for rural sociologists to throw light on the reaction of rural people to administrative arrangements implicit in proposed or actual legislation directly affecting them. Some social scientists fear concentration on practical issues on the grounds that advance comes from pure science. It seems highly probable, however, that advance comes from striving to answer questions urgent enough to give impetus to creative efforts. Such selection does not preclude rigorous analysis.

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Major Economic Forces Affecting Agriculture with Particular Reference to California, S. V. Ciriacy-Wantrup, Hilgardia, Berkeley; University of California, 1947. Pp. 76. Contribution from the Giannini Foundation of Agricultural Economics.

Californians who hold that the economy of that state is essentially a thing apart from the economy of the remainder of the country, will find Professor Wantrup's volume most enlightening. Agricultural economists who have been reading or writing on the subject

of trends and fluctuations in farm production, prices, income and costs and the relation of various categories of national income to farm prices and income will find much of the first half of this volume a familiar story. Students of international trade and finance will probably not be too pleased with the brief treatment of and minimized role ascribed to foreign trade and its relations to United States agriculture.

Those who look to monetary and fiscal gods alone to lead us from the business cycle wilderness will find little cheer in Wantrup's thesis. On the other hand, those who have discovered order and logic in the Keynesian slant on economic theory and policy will be at home in the solid second portion of *The Major Economic Forces Affecting Agriculture.*

Aside from the greater rate of expansion of California's agriculture, especially during 1910–30, the fluctuations in the substantive economic aspects of agriculture were shown to follow a closely similar pattern for California and for the United States.

Series of data (arithmetic averages) and related descriptive material covering for the most part the period 1910–1947 include farm employment, commodity prices and production, farm income, and major farm production expense categories. The major concern of this study is with the demand side of the farm price and income equation. As an introduction to demand analysis, the familiar relationships between non-farm national income and income of industrial workers to farm prices is stressed. The author properly points out, however, that those relationships are merely the immediate or first line manifestations of more basic economic forces which ultimately determine the level and fluctuations of farm prices.

Foreign trade in farm products is placed far down the scale of importance among the economic forces affecting agriculture. The relative size of domestic and foreign markets for United States farm products is offered in explanation of the minor role ascribed to foreign trade. The treatment of this subject was not as complete or penetrating as one might well expect from the author. On the other hand, the assumption that a high volume of foreign trade would be associated with high-level economic stability in the United States and abroad is well taken and in considerable measure justifies the relative lack of emphasis on foreign trade.

Money likewise is given a minor role among the economic factors important to agriculture. It is asserted that, "money may have ef-

fects upon prices," indirectly through the stimulation or discouragement to investment. A small influence of the changing quantity of money may come through its effects of interest rates which in turn are related to investment as an "internal condition." The purchasing power of monetary metal producers is offered as a relatively minor "external stimulus of investment." More significance is attached by the author to the alleged fact that " . . . in a correlation with investment and prices, the quantity of money must be generally regarded as a dependent rather than an independent variable" and thus a result rather than a cause of economic activity.

An unbalance between saving and investment is credited with being the critical element behind the disturbing fluctuations in farm income. Idle balances from savings out of income, regardless of their location, are the culprits which change the subsequent magnitude of the income stream and lead to: (a) a new equilibrium at a lower level of prices, if prices are flexible, or (b) if prices are inflexible, a viscous deflationary circle which can be checked only by decreased saving or expanded investment.

The meaning, determining factors and significance of savings and investments are ably reviewed and reasonably well supported with data and charts. Institutional rigidities in farm prices and wages, introduced by support price legislation and labor unions, respectively, are viewed with some alarm as impediments to improvement in investment conditions. The implications of widespread rigidities in prices in the industrial sector of the economy are strangely absent from this section.

A concluding section is devoted to an able review of "Some Implications for Public Economic Policies and for Individual Action." Farmers are urged to shift their attention and efforts for aid from agricultural legislation to policies more directly related to stability of investment and non-agricultural income. Government subsidies for expanding and stabilizing the income stream should not be diverted to savings nor to consumption but rather, to increasing investment which involves a large secondary support to employment, investment and consumption.

As a parting shot farmers are advised as to self-help measures. Leading these is the ever sound advice to " . . . keep himself well informed. . . . " Proper management of expenses, savings, and investment are stressed in the remaining points.

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Security for the People, Roland W. Bartlett, Champaign: Garrard Press, 1949. Pp. vii, 295.

It is commendable that an agricultural economist in a very specialized field should be concerned about broad public problems. Certainly the problem of maintaining a high level of employment is important to "high farm income." Also, as the author states, it is relevant to present day problems that might lead to World War III.

There is need for a book that would draw together and summarize the best thinking and writing on the problems of employment and economic stability. A book of this kind should be written in non-technical language, for intelligent leaders in public policy who may not be professional economists. One might hope that a book with the subtitle, "Ways of Maintaining Full Employment and High Farm Income," might do this. A reader who is looking for a book of this kind will be disappointed with *Security for the People*. It makes no claim to being such a book. Monetary and fiscal policy is mentioned in three one-sentence statements in various places in the book with the first such statement accompanied by a footnote stating, "An analysis of such policies is, however, outside the scope of this book."

The first two sentences of the preface indicate the major emphasis. "For the first time in American history, we had continued mass unemployment during the decade of the 1930's with nine million unemployed workers as recently as 1939. The major cause was the exaction of monopoly prices by a few large mass-production industries."

The author then proceeds to try to demonstrate that the problem of avoiding depressions (he does not discuss the related problem of inflation) is primarily the problem of controlling monopoly in "a few large mass production industries."

The first chapter and the last chapter are summaries. A program of action is recommended for labor, industry and agriculture. "This should include a program:

"1. Showing that the downfall of private capitalism and continued mass unemployment in European countries was caused by monopoly controls of price and production.

"2. Giving full publicity to wage and price policies of controlled industries in the United States which cause unemployment.

"3. For preventing monopolies and wasteful competition and encouraging constructive competition.

"4. For curbing monopolies by encouraging free enterprise cooperatives, chain stores, and self-sustaining or self-liquidating municipal or regional government-operated businesses to compete vigorously with independent private business.

"5. For studying the possibilities of:

a. Guaranteeing 52 checks a year to wage earners in place of the present system of an uncertain number of checks each year.

b. Gearing total wage pay rolls to some fixed proportion of sales value of product or physical volume of production in place of inflexible hourly wages.

"6. Initiating a long range educational plan for each major industrial state directed toward maintaining full employment.

"7. For developing monetary, fiscal and tax policies which will alleviate depression."

The balance of the book is devoted to discussing this kind of program, with the important omission of a discussion of fiscal and monetary policy.

It is difficult to conceive of a book written on the subject of maintaining full employment which would make no reference to the great quantity of very able and scholarly work by some of the best minds in economics in recent years. This book has a long list of references at the end of each chapter, and yet there is not a single reference to any of the writing since 1935 by competent economists which has been stimulated by J. M. Keynes, *General Theory*. It is as if none of it had been written. Though the book deals specifically with the problem of price flexibility and full employment, no reference is made to recent writing by Simons, Pigou, Lange, Modiglianai, and Patinkin.

Certainly price flexibility has a bearing on maintenance of a stable high level of employment. There is, however, considerable reason to doubt how effective a successful policy of price flexibility alone (wage flexibility received little attention) would be in a dynamic society in solving the problem of maintaining a high and stable level of employment.

There seems to be no reason for completely ignoring the monetary and fiscal aspects of the problem. It is doubtful that a book on this subject which completely ignores the basic problems of aggregate demand will receive very serious consideration.

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Farm Work Simplification, Lawrence M. Vaughan and Lowell S. Hardin, New York: John Wiley and Sons, Inc., 1949. Pp. xii, 145. $2.80.

This publication is the first book to be devoted entirely to the simplification of farm work, an area of study which has been receiving increased attention from agricultural economists and agricultural engineers since 1942. It is, according to the Foreword and Preface, a compilation of the experiences, methods, and results of the men who have been doing research, teaching and extension work in the agricultural colleges. The book will be welcomed by these men and, in addition, will be very useful to students, farmers, and all others who are interested in "the application of the industrially developed techniques of scientific management and engineering methods to farm work."

The first part of the book discusses the role of work simplification in American agriculture, gives empirical evidence of savings in labor by the application of work simplification techniques, lists the principles of effective work, and suggests ways in which farmers may use the results of work simplification studies. The first chapter defines work simplification as "the development and use of easier, quicker, and more economical ways of doing farm jobs." The savings of time and energy, in addition to removing some of the drudgery from farm work, may result in decreased cost and increased income. The increase in income might come from improvements in methods used on enterprises where the savings were made and from the application of labor saved to other productive work. The second chapter is devoted entirely to the presentation of statistical evidence of the amount of labor that can be saved by applying farm work simplification techniques to various farm enterprises. The third chapter gives the principles of effective work that apply to simplifying handwork, reducing chore travel, and using equipment and work crews effectively. The fourth chapter makes specific suggestions for putting across work simplification ideas to farmers and for the application of these ideas by farmers on their own farms.

The second part of the book "is prepared for those who may be planning to make a research study of work methods or teach the principles and procedures of work simplification and for reference reading by students taking courses in work simplification." Suggestions are given on organizing and conducting work simplification studies, on techniques of analysis and on teaching methods to be

used in short courses for county agents, vocational-agriculture teachers and others, and in regular high school and college courses.

The engineering aspects of farm work simplification receive major emphasis in this book with only casual mention of the economic implications. There is a tendency to advance farm work simplification as the panacea for all the problems of the individual farmer. Additional emphasis should have been given to the point that a farmer's net income will be increased by the use of work simplification only if crop and livestock productivity is increased, if costs are reduced, or if the farm business is large enough to use productively the labor saved. Possible savings in processing plants for agricultural products should have been mentioned because some of these savings would probably be passed back to the farmer in the form of higher prices for his products. Research and extension people in the state colleges do not confine their activities to the individual farm. Research and extension work in work simplification should be concentrated in the areas where the greatest savings can be made.

The second chapter appears to be an attempt to justify or sell farm work simplification and would probably have been more useful if it followed Chapters III and IV to illustrate the application to specific farm enterprises. The effectiveness of the presentation of the principles of effective work in Chapter III is lessened by giving an example first and then listing the principles. The book is well-illustrated and is written so that it can be readily understood by farmers and others interested in practical applications. It should be read by all those who are interested in farm management work.

EVERETT E. PETERSON

Michigan State College

Marketing Poultry Products, E. W. Benjamin, H. C. Pierce, W. D. Termohlen. New York: John Wiley & Sons, Inc., 1949. Fourth edition, Pp. 389, Fig. 163. $6.00.

The term "marketing" has been used in a very broad and inclusive manner. In the Research and Marketing Act there is no specific definition of the term. However, it is generally accepted that marketing of an agricultural product begins where the crop is harvested or first purchased, and ends when the product is purchased by the consumer. Hence, a book on marketing should include not only a discussion of the physical aspects involved in bringing the

product to the consumer, but should also cover the economics of distribution. Under this latter heading might be included the factors entering into the farm-to-retail price spread, discussion of costs and efficiencies in the market operations, factors affecting supply and demand, and the effects of governmental policies on the marketing system. Also, in recent years, there has been a very healthy development in marketing books in that the descriptive material is largely used to give the student some understanding of the problems as an aid to improving the marketing system.

With these few introductory remarks in mind, *Marketing Poultry Products* is a very difficult book to review as it covers primarily the physical aspects of moving poultry and eggs to market, and in places discusses poultry husbandry. A more appropriate title might be along the following lines—How to run a poultry and egg business. There are six chapters (Chapters III–VIII) discussing feeding station and plant operations, proper plant layout, etc., but barely any reference to costs of operations or efficiencies in size of operation. There is a chapter each on the preservation of eggs and poultry. These give the proper temperatures, humidities, packing materials, etc. relating to the storing of poultry and eggs but do not mention the effects of storage on prices. The authors discuss at some length the grades and grading of poultry products (about twenty-five pages are given over to reproducing USDA grades) but not a word about the effects of grades and standardization on the marketing of the products. Chapter IX, "Transportation" sets forth the proper methods of loading and refrigerating railroad cars, but no idea of the part played by railroad rates in marketing poultry products. The chapters entitled "Retailing Eggs and Poultry" and "Advertising" tell how to retail and advertise the products but do not mention farm-to-retail price spreads, or how to reduce marketing margins.

The chapters on "The Industry" (Chapter I) and "Prices and Market Reporting" (Chapter XVII), are very incomplete. For example, there is no discussion whatsoever as to the changing seasonality of production of eggs, and its effects on prices. There is no reference to the changes in poultry meat output due to the tremendous growth of the broiler industry. There is not even a single mention of the increased size of operations of the individual producer and its effect upon the marketing of poultry and eggs. The only reference to a price analysis on eggs mentions the results of an unpub-

lished study made by the Econometric Institute for a private firm. The latest price study on poultry meat the authors could find is one made by Buechel in 1929.

Factors affecting supply, concerning which there has been much work both inside and outside government circles, is not touched upon. The statement, "the consumer demand for eggs is generally greatest during Lent when egg prices are at their low" (p. 304), indicates a lack of understanding as to the nature of demand. Other statements are open to question, such as "hedging has perhaps brought about a slightly higher market for spot eggs during the storing season."

Except for some new material on freezing and drying eggs and eviscerating poultry. this edition has little that is new or improved from the 1937 edition. In fact, the bibliography in the 1937 edition was very complete, which can't be said for the bibliography in this edition. Most of the figures are old except those on eviscerating and cut-up poultry and the freezing and drying of eggs. A particularly bad example is that of a kosher slaughter house (p. 261), which was taken at least fifteen years ago. Two new tables are presented in this edition.

To this reviewer, as a former USDA employee, it is inconceivable that the authors could write a book on marketing and refer to the work of the Bureau of Agricultural Economics only once, and then merely to mention a hatchery report. But what appears even more strange is the lack of any discussion on governmental policy.

The authors are well known and held in high repute in industry circles. Earl Benjamin, who wrote the first two editions, taught the first course in Poultry Marketing at Cornell, and for many years has been connected with the cooperative movement on the West Coast. "Doc" Pierce, who collaborated on the third edition, also taught for many years at Iowa State College, and is now Director of Poultry Research for the Great Atlantic & Pacific Tea Company. "Dewey" Termohlen, who joined the other two in writing this fourth edition, is probably the most widely know individual in the poultry industry. Among his many positions he is now the Director of Poultry Branch, Production and Marketing Administration, and President of the World's Poultry Science Association.

The 1937 edition was considered a good book in its day. Since that time, the poultry and egg industry, along with the rest of the agricultural economy, has moved forward and changed tremen-

dously. This book does not reflect that. The 1949 edition might be of some help to the novice entering the field of processing and distributing poultry products. To the student of marketing and marketing problems, there is little to be gained by its perusal.

GERSON G. LEVIN

Olson Brothers, Inc., North Hollywood, California

Urban Land Economics. Richard U. Ratcliff. New York: McGraw Hill Book Co., 1949. Pp. xii, 533. $5.50.

Urban land economics is a young and rapidly developing field. Like the broader field of general land economics, of which it is a part, its development for the most part has come during the last 25 to 30 years. Throughout this period considerable research has been done on urban land problems and numerous concepts have been formulated. Yet this is one of the first books that attempts to organize and systematize the thinking in this field. As such, it comes as a welcome and long needed addition to the literature on land economics.

Professor Ratcliff states as his purpose the presentation of "an orderly body of facts and principles that have more or less direct application to the utilization of urban land." He advances the thesis that "the determination of urban land use is a market process" (p. vi). This thesis is developed in the organization of the book.

The first three chapters may, in a sense, be considered as introductory. Chapter 1, "The Institutional Aspects of Real Property," discusses the concept of property, or as the author writes: "deals with the commodity that is traded in the market—rights in land." The following chapters, "The Economics of Urbanization" and "The City as a Social Complex," present interesting and basic economic and social data concerning urbanization and urban areas.

Chapters 4 and 5 are concerned with the demand for residential and non-residential space. In these chapters consideration is given to the effects on the demand situation of factors such as population changes, migration, marriages, age and family status, occupation, sharing of dwellings, custom, location, consumer tastes and preferences, and the buyer's financial status. Students of farm land tenure may be surprised to learn that the subject of urban land tenure also is regarded as an aspect of demand.

The supply side of the picture is considered and developed in the chapters on "The Construction Industry," "The Building Pro-

cess," "Urban Land Credit," and "The Home Mortgage Market". As these chapter titles indicate, the author carries his discussion of the supply factors far beyond a consideration of the physical supply of urban land and the costs immediately associated with land development. Cyclical factors and movements, building costs, credit costs and terms, and the intricacies of the home mortgage market all help to explain the supply situation. The interaction between the dynamic forces of supply and demand is the subject of the chapters on the "Urban Land Market Functions and Organization" and "The Housing Market."

The discussion of "Land Income and Value" that follows these two chapters should be of particular interest to economists. In it, the author briefly treats the subjects of price, land utilization costs, value and valuation, and rent. Most of the space is given to the development of a concept of urban land rent. Urban land is regarded as a joint product in which the elements of capital and land are "inextricably mixed." The classical concept of rent as a residual, as "the waste that the enterprise can support after paying a return on the nonwasting capital" (p. 361) is regarded as unacceptable. The concepts of rent as a monopoly return and as surplus income ("the difference between costs of production including entrepreneurial return and the selling price of the product"—pp. 364–65) are also rejected. Ratcliff defines rent as "a return to land for the contribution it makes in creating want-satisfying goods and services" (p. 365). Urban land rent is determined by supply and demand in terms of opportunity costs. It is a part of price and over the long run competition can be expected to keep entrepreneurial rents in line with economic rent.

The discussion of land income and value lays the groundwork for the author's treatment of the subjects of urban land use and city growth. These are discussed in the chapter on "City Growth and Structure." Consideration is given in this chapter to competition of uses, situs or location factors, and to the specific factors that influence the location of various types of retail establishments.

Chapter 14 deals briefly with a variety of "Urban Land Policies," including city planning, zoning, subdivision control, taxation and urban redevelopment. This is followed by two chapters on "The Economics of Housing Policy." They deal with the nature of the housing problem, the control of instability, reducing the costs of shelter, and means for handling the problems of substandard hous-

ing conditions. The analysis in these chapters is interesting and commendable but at the same time seems to stand out as an appendage to the rest of the book.

Looking at the book as a whole, one must admit that it has many merits. It is a fat volume, is well written and very readable. The approach is new and somewhat different from that employed in standard textbooks in general land economics. The author has made a very real contribution in drawing together many of the concepts of his field. Many sections of this book, such as his account of the building cycle in Chapter 7, his analysis of the "filtering-down" process in his chapter on "The Housing Market," and his discussion of housing costs in Chapter 15, are particularly commendable.

In the eyes of this reviewer, the book has many good and praiseworthy characteristics, but also some aspects that are subject to criticism. Some of the data reported, as in Tables 23, 24 and 25, seem to be strangely out of date in 1949. The various chapters are well documented but their value for class purposes could probably be improved by the addition of a bibliography or a listing of selected references at the end of each chapter.

As one might expect, most of the analysis and discussion centers around the problem of urban housing and space for housing. Professor Ratcliff is to be commended for the attention he gives to commercial and industrial land uses. He could have improved his over-all treatment, however, had he given more than a page and a half to the discussion of the use of urban lands for streets, parks and other public and semi-public uses.

The greatest weakness of this book lies in the limited emphasis it gives to the basic and underlying economic principles that affect land use. In his various chapters the author shows considerable ability in using economic tools of analysis, but on the whole he tends to overemphasize the institutional aspects of the field to the neglect of the economic aspects.

The book is described by the publisher as "a foundation work which is fundamental but not elementary." In this sense the author may be justified in assuming some reader-awareness of a number of economic concepts. As a class textbook, however, too much is probably assumed concerning the average student's awareness and understanding of the basic concepts and theory of land economics. This reviewer feels that more than passing mention or consideration should be given to the concepts of intensity of land use, the

principle of diminishing returns, ripening and supercession costs, the property valuation process, and the concept of fixity of investments in landed property. Mention should at least be made of the operation of the principles of comparative advantage and first choice. Also much more space should be given to the subject of property valuation and appraisal. The capitalization approach to valuation is very briefly discussed and little, if anything, is said about the market analysis and cost of reproduction approaches that are so commonly used in urban land appraisals.

RALEIGH BARLOWE
Michigan State College and Bureau of Agricultural Economics

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"American Cooperation 1947," Washington, D. C.: American Institute of Cooperation. Pp. 540. 1948.

Baer, Julius B. and Saxon, Olin Glenn, "Commodity Exchanges and Futures Trading," New York: Harper and Brothers, 1949. Pp. 324. $5.00.

*Bartlett, Roland W., "Security for the People," Champaign: Garrard Press, 1949. Pp. 295.

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Commodity Research Bureau, Incorporated, "Commodity Year Book, 1949," New York: Commodity Research Bureau, Incorporated. Pp. 472. $10.00.

Cortney, Philip, "The Economic Munich," New York: Philosophical Library, 1949. Pp. 262.

Duerr, William A., "The Economic Problems of Forestry in the Appalachian Region," Cambridge: Harvard University Press, 1949. Pp. 317. $5.00.

Elchibegoff, Ivan M., "United States International Timber Trade in the Pacific Area," Stanford, Calif.: Stanford University Press, 1949. Pp. 302. $7.50.

Hardenburg, E. V., "Potato Production," Ithaca, New York: Comstock Publishing Company, Incorporated, 1949.

Hopkins, John A., and Heady, Earl O., "Farm Records," Third Edition. Ames, Iowa: Iowa State College Press, 1949. $3.75.

Hultgren, Thor, "American Transportation in Prosperity and Depression," New York: National Bureau of Economic Research, 1949.

Murray, Chalmers S., illustrated by Taylor, Anna Heyward, "This Our Land," Charleston, South Carolina: Carolina Art Association, 1949. Pp. 290. $5.00.

*Ratcliff, Richard U., "Urban Land Economics," New York: McGraw-Hill Book Company, 1949. Pp. 533. $5.50.

*Vaughan, Lawrence M., and Hardin, Lowell S., "Farm Work Simplification," New York, New York: John Wiley & Sons, 1949. $2.80.

* Reviewed in this issue.

NEWS NOTES

The book "Readings on Agricultural Policy" published by the Blakiston Company is now available. (See advertisement in this issue.) This book is the result of action taken by the American Farm Economic Association at its 1947 meeting when it approved a proposal of the Executive Committee that the Association undertake to publish reprints of articles in various fields of agricultural economics. The Editorial Council of the Association selected agricultural policy as the field for the initial volume and invited O. B. Jesness to assume responsibilities for editing the volume.

Martin A. Abrahamsen has re-joined the Cooperative Research and Service Division of Farm Credit Administration as principal agricultural economist in charge of the Cooperative Purchasing Section. For the past four years Dr. Abrahamsen has been professor of agricultural economics in charge of research and teaching in marketing at North Carolina State College.

Henry A. Allpress has accepted an appointment in Rural Economics at the University of Nebraska. His present work is on poultry and egg marketing.

M. E. Andal of the Saskatchewan office of the Economics Division, Federal Department of Agriculture, has returned after having been on leave for the academic year to pursue graduate work at Michigan State College.

Norris J. Anderson, formerly Professor of Agricultural Economics at Kansas State College, is now Extension Economist at the University of Nebraska.

G. M. Beal, Professor of Marketing in the Department of Agricultural Economics and Marketing at the University of Maryland, has been made Head of the Division of Marketing in the Department.

Karl Brandt, economist and professor of agricultural economics of the Food Research Institute of Stanford University returned April 10 after a year's sabbatical leave during which he lectured at Heidelberg, Gottingen and Geneva Universities and travelled extensively in Germany, France, and Italy.

Harley M. Brewer, of the Agricultural Estimates staff of the Bureau of Agricultural Economics, has been in Kansas helping with a pre-harvest wheat survey similar to those made in the late 1930's and the early 1940's.

Owen L. Brough has been promoted to assistant professor at Iowa State College. His major field is livestock marketing.

W. Herbert Brown, recently at Harvard University, has joined the Farm Management staff of the Bureau of Agricultural Economics and has been assigned to the Farm Costs and Returns section.

Arthur C. Bunce, who has been Economic Advisor to the Commanding General of South Korea with the rank of minister, has recently been assigned to the position of Chief of the Economic Cooperation Administration in South Korea.

R. P. Callaway, formerly Professor of Agricultural Economics and Extension Marketing Specialist at the University of Maryland has joined the staff of the Potato Division, Fruit and Vegetable Branch, Production and Marketing Administration, U.S.D.A.

James P. Cavin, Head of the Division of Statistical and Historical Research, Bureau of Agricultural Economics, is with the Paris office of the Economic Cooperation Administration, where he is working on East-West trade problems. He will return to the Bureau in September.

Edward C. Collins has joined the staff of the Fruit and Vegetable Section of the Cooperative Research and Service Division of Farm Credit Administration as associate agricultural economist. Mr. Collins has been employed for the past two years as assistant professor of economics at North Carolina State College.

Albert R. Conley, student and research worker in the graduate school at Ohio State University, has been appointed associate professor of agricultural economics at the University of Missouri and will assume his duties there on September 1. He is filling a vacancy left by the resignation of Dr. E. H. Matzen, who joined the Farm Credit Administration last winter. Mr. Conley is completing his work for the Doctor of Philosophy degree at Ohio State University.

Ivan L. Corbridge joined the Agricultural Economics staff of the State College of Washington, January 1, 1949, as Assistant Professor and Assistant Agricultural Economist. His duties involve research and teaching in marketing.

Rex Daly has returned to the staff of the Bureau of Agricultural Economics. He has been with the Illinois Agricultural Experiment Station where he worked on a Research and Marketing Administration project which dealt with methods of measuring farm expenditures and income.

Miss Loa E. Davis joined the Division of Agricultural Economics, Extenson Service, U.S.D.A. in May to assist with marketing projects in consumer education conducted under the Research and Marketing Act. Miss Davis was in Washington with the Extension farm labor program in 1945 and since then has been attending Teachers College, Columbia, and serving as home demonstration agent in Frederick County, Maryland.

J. S. Davis, director of the Food Research Institute of Stanford University, returned June 10, after having spent ten weeks at the Institute for Advanced Study in Princeton, New Jersey, and ten weeks in the spring on an observation tour of the southern states.

Walter King Davis, a recent graduate of the Florida College of Agriculture, has joined the staff of the Cooperative Research and Service Division, Farm Credit Administration, as junior agricultural economist.

J. M. Dawson and M. Rachlis, who have been on leave of absence for further graduate work at the University of Illinois and Purdue University, respectively, have returned to their duties in the Economics Division, Dominion Department of Agriculture, Ottawa.

R. J. Doll, Kansas State College, is a visiting professor at the University of Arkansas for the first summer session. He will teach courses in Agricultural Policy and Agricultural Economics.

Phil S. Eckert, formerly head of the Department of Agricultural Economics and Rural Sociology, Montana State College, resigned last December to accept a position as specialist in the field of international exchange of agricultural commodities with the Economic Cooperation Association. Dr. Eckert is stationed in Paris and travels throughout the sixteen cooperating nations.

Paul A. Eke, Head of the Department of Agricultural Economics at Idaho, returned July 1 from a year of sabbatical leave. He spent his leave in writing and study at the University of Chicago and travelling in European countries.

William H. Fippin has resigned from the staff of the Bureau of Agricultural Economics to accept an appointment in the Foreign Service of the State Department as chief of agricultural training for the American Mission in Korea.

H. C. Filley retired as Chairman of the Department of Rural Economics at the University of Nebraska on July 1, and will leave the University to enter other work September 1. His successor is Dr. C. Clyde Mitchell who has recently been working with Dr. Black at Harvard.

Walter U. Fuhriman has transferred from the Department of the Interior to the Bureau of Agricultural Economics, where he serves as leader of the Western Agricultural section, Division of Farm Management and Costs.

Marshall Godwin, who has just completed work for a Ph.D. degree at Cornell University, has been appointed Associate Professor in the Department of Agricultural Economics and Marketing at the University of Maryland. Dr. Godwin will teach courses and conduct research in fruit and vegetable marketing.

George H. Goldsborough has re-joined the Cooperative Research and Service Division of Farm Credit Administration as senior agricultural economist in the Fruit and Vegetable Section. He has been employed for the past year with the Rural Electrification Administration.

Wade F. Gregory, formerly of Pennsylvania Agricultural Experiment Station has accepted a position at the Alabama Agricultural Experiment Station as assistant agricultural economist in charge of a Feed Utilization Study. The project is jointly supported by the Station and Bureau of Agricultural Economics.

Ernest Grove of the staff of the Bureau of Agricultural Economics has received a Ph.D. degree from the University of California. His dissertation is on income parity for agriculture.

Clifford M. Hardin has been appointed Director of the Agricultural Experiment Station, Michigan State College, effective July 1, 1949, to succeed Director V. R. Gardner, who retired at that time.

H. R. Hare, formerly Agricultural Advisor, Employment Service, Department of Labour, Ottawa, has been appointed Superintendent of Farm Development, Soldier Settlement and Veterans Land Act, with headquarters at Ottawa.

Charles W. Hauck is now in charge of the Fruits and Vegetables Marketing Section, Division of Agricultural Economics, Extension Service, U.S.D.A. He has been stationed in Washington since February 1949, hav-

ing transferred to this post from Ohio State University, where he was engaged in research and teaching in the marketing of fruits and vegetables from 1926 to 1949.

Cecil B. Haver has returned to North Dakota Agricultural College after a quarter's leave of absence granted him to complete his Ph.D. work at Iowa State College.

G. V. Haythorne, Research and Statistics Branch, Department of Labour, Ottawa, recently completed requirements for a Ph.D. degree at Harvard University.

Jimmye S. Hillman, Assistant Professor, Department of Agricultural Economics, Mississippi State College, has been on leave doing advanced work at the University of California and will continue on leave during the coming academic year.

E. C. Hope, formerly Professor of Farm Management at the University of Saskatchewan, has been appointed Economist for the Canadian Federation of Agriculture with headquarters at Ottawa.

S. C. Hudson, Economics Division, Dominion Department of Agriculture, Ottawa, has been elected President of the Canadian Agricultural Economics Society for the coming year. Hadley VanVliet of the University of Saskatchewan is vice-president. The Councillors are I. S. MacArthur, A. H. Turner, W. D. Porter of Ottawa, and C. C. Spence of Edmonton, Alberta.

Buis T. Inman has been appointed assistant head of the Division of Land Economics, Bureau of Agricultural Economics, as well as leader of the field work of the Division.

Hilliard Jackson has been appointed Assistant Professor of Rural Economics and Sociology, University of Arkansas, effective August 1. Mr. Jackson attended the Regional Agricultural Marketing School, North Carolina State College, during the summer and was formerly employed jointly by the University of Arkansas and Bureau of Agricultural Economics.

E. Jaska recently joined the staff of the Economics Division, Dominion Department of Agriculture, Ottawa. For the past 15 years Dr. Jaska, a native of Estonia, has done research in agricultural economics at the Universities of Tartu and Jenna and has edited economic journals in Tallinn, Estonia.

Harold R. Jensen has been promoted to assistant professor at Iowa State College. His major field is farm management and production economics.

Hugh A. Johnson, a member of the Farm Management staff of the Bureau of Agricultural Economics since 1941, is now an agricultural economist at the Agricultural Experiment Station, Fairbanks, Alaska. He has recently been located at Purdue.

Earl L. Johnston, formerly with the Division of Agricultural Relations, Tennessee Valley Authority, has joined the North Carolina Agricultural Extension Service staff as Marketing Specialist in the Department of Agricultural Economics.

C. Del Mar Kearl has accepted a position as Assistant Professor in

Farm Management in charge of Farm Cost Account work at Cornell.

M. M. Kelso, Professor of Ranch Management at Montana State College, has been designated head of the Department of Agricultural Economics and Rural Sociology and of the Department of Economics and Sociology. He fills the position left vacant by the resignation of Dr. P. H. Eckert, formerly head of the two departments.

J. W. Kirkbridge is transferring from the Kentucky office of Agricultural Estimates to the Washington office of the Bureau of Agricultural Economics.

G. E. Korzan, Assistant Professor of Marketing in the Department of Agricultural Economics and Rural Sociology at Montana State College, has resigned that position to accept a similar one at Oregon State College.

Baldur H. Kristjanson received his Ph.D. degree from the University of Wisconsin in June and has been promoted to the rank of Associate Professor of Agricultural Economics at North Dakota Agricultural College.

Charles N. Lane, Agricultural Economist with the Economic and Credit Research Division of the Farm Credit Administration, has recently joined the staff of the Central Project Office in the Agricultural Research Administration, Washington, C. D.

L. C. Lanford is teaching two courses in Agricultural Economics at the Abraham Baldwin Agricultural College, Tifton, Georgia.

J. Lattimer, Department of Farm Economics, Macdonald College, has been elected a Fellow of the Agricultural Institute of Canada.

Jerry M. Law has been appointed as cooperative agent on southern regional poultry and egg marketing work and will be located at the University of Arkansas, Fayetteville. He had been on the staff of the Department of Agricultural Economics, Louisiana State University.

John E. Mason, for the last 2 years a member of the Farm Management staff of the Bureau of Agricultural Economics, died June 10 at the age of 40, following a week's illness. A native of Tennessee, Mr. Mason had been employed in the Department of Agriculture at various field stations and in Washington for 12 years.

Michigan State College students have organized a student section of the American Farm Economics Association. Dr. Arthur Mauch and Dr. Karl A. Wright of the Agricultural Economics Department are the faculty advisors.

George Montgomery has returned to Kansas State College to resume his work as Head of the Department of Economics and Sociology. He has been doing graduate work at the University of Minnesota.

R. G. Murphy has resigned his position as acting Assistant Professor of Farm Management Extension at Cornell University, and will continue in graduate work at Cornell to complete requirements for a doctor's degree.

R. A. Murray has resumed his duties as Professor of Agricultural Economics at State Teachers College, Platteville, Wisconsin, after completing requirements for a Ph.D. degree in Farm Management at Cornell University.

Max Myers is expected to return to the Agricultural Economics Department of South Dakota State College in September, after receiving the Ph.D. degree at Cornell University.

Claude Nash retired from active duty in the Department of Agricultural Economics at Michigan State College on June 30, 1949. He was Extension Specialist for 18 years in agricultural marketing following 15 years as County Agricultural Agent.

Ottar Nervik received his Ph.D. degree in Economics at Harvard University in July and is now affiliated with the Economics Department of South Dakota State College.

Arthur G. Peterson has returned to the Munitions Board, Office of the Secretary of Defense as Chief of the Textiles, Forest and Agricultural Products Branch, after spending nearly a year as Chief of the Statistics Division of the National Economic Board in Seoul, Korea.

Homer S. Porteus, formerly county agricultural agent in Ohio, has joined the staff of the Division of Agricultural Economics, Extension Service, U.S.D.A., as extension economist in marketing.

Winston E. Pullen, Assistant Professor of Agricultural Economics and Farm Management at the University of Maine, will be on leave of absence for the coming academic year to pursue graduate study at Cornell University.

Philip M. Raup has joined the Land Economics staff of the Bureau of Agricultural Economics as a cooperative employee with the Wisconsin Agricultural Experiment Station. He recently returned from 3 years in Berlin with the Office of Military Govt.

John C. Redman will be on leave from Mississippi State College during the coming year, doing advanced work at the University of Kentucky.

Fred B. Saunders, who received his Master's degree in Agricultural Economics, in June 1949 at the University of Georgia, has accepted a position at the Berry Schools, Mount Berry, Georgia, where he will teach courses in Agricultural Economics.

Rainer Schickele of North Dakota Agricultural College has been elected Chairman of the Northern Great Plains Tenure Committee of the 1949–1950 term.

Leonard Schruben has joined the staff at Kansas State College and will be in charge of the work in grain marketing.

Raymond C. Scott has been appointed Associate Professor in the Department of Rural Economics and Rural Sociology at Ohio State University and Ohio Agricultural Experiment Station. He will work in the field of fruit and vegetable marketing, research and teaching.

Geoffrey Shepherd returned in the middle of June from six weeks in western Germany. He assisted the Bipartite Control Office, Food and Agriculture Group, at Frankfurt, and western German agricultural economists and officials in developing a long-range price policy for western German agriculture.

Professor Edward A. Duddy of the School of Business, University of Chicago, has a file of the Journal of Farm Economics, 1924–1948, with the exception of two numbers missing which he will sell for $50.00.

LAND ECONOMICS

A Quarterly Journal of Planning, Housing & Public Utilities

Contents of August 1949 issue will include:

Population Pressure and Food Production Potentialities .....*Raleigh Barlowe*
Variables Commonly Ignored in Housing Demand Analysis ..*Sherman J. Maisel*
On the Current Readjustment in Japanese Land Tenure ..*Laurence I. Hewes, Jr.*
Dead Land .....*Frederick T. Aschman*
Relocating Negroes from Urban Slum Clearance Sites .....*George B. Nesbitt*
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